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Teaching in Indian Elementary Schools

MISS CORRIE GORDON

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TEACHING IN INDIAN ELEMENTARY SCHOOLS

TEACHING IN INDIAN ELEMENTARY SCHOOLS

EDITED BY

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WITH FOREWORD BY

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FOREWORD

This useful publication on "Teaching in Indian Elementary Schools," containing twelve chapters, each written by an expert, with an Introduction by the Editor, Miss Corrie Gordon, ought to be welcomed as a valuable contribution to the literature on education at the present time, when the demand for educational reform has become so incessant and general. The chapters in the book deal with the training of children; and what is learnt in childhood becomes the basis of all that education which the child receives in the subsequent stages of its life. Thus the child, in the familiar words of the poet, becomes father of the man.

Unfortunately this truth has been so neglected in our educational system, that while we have been devoting particular attention to education at the top, that at the bottom is neglected as work that may be left to be done by anybody, whether he is fit or not to handle children, as they should be handled in the matter of training. The discovery is ascribed to the Roman Catholic priests of the Society of Jesus, founded by Ignatius Loyola, that the really important period of man's life for the purposes of education and character-forming is up to his eighth year. It is then that the sure foundation of manhood is laid—what he imbibes by way of knowledge and experience subsequently takes its colour from what he acquired before. This has been the Indian view of education from ancient times. Up to his eighth year a child was regarded by the Indian *Shastrâs* and sages as a chartered libertine, who should be disciplined first by his mother, because she is and has to be responsible for her child's growth in character; the child's mother was considered the first and best of his *Gurus*, *i.e.*, teachers—superior to all of them. Moses taught by Pharoah's daughter illustrates that prime principle or golden rule of education. Miss Gordon has the support of the ancient tradition of India when in her Introduction to the chapters of this book she pleads that "all the teachers in an elementary

school should be women" because, "as a general rule, women are more sympathetic with young children and are able to bring themselves to the level of the children more easily than men can." Just as it is said of an artist that to draw the picture of a tree he should become a tree—entering into its life and catching and working on its spirit—so should a teacher of children become one of them to make of them good patriots and useful citizens. When Christ said "suffer little children to come unto me," he gave utterance to a most precious idea which lies at the root of all educational reform. That idea has been expanded in the chapters in this book with a clearness which makes it instructive reading.

N. G. CHANDAVARKAR.

INTRODUCTION

The Teacher.

"One thing is truly needed to be a teacher of children—it is to be like children, to forget that you are wise or have come to the end of knowledge. In order to be truly the guide of children you must never be conscious of age, or of superiority, or of anything of that kind. You must be their elder brother, ready to travel with them in the same path of higher wisdom and aspiration. This is the only advice I can offer to you—to cultivate the spirit of the eternal child, if you must take up the task of training the children of man."

The above words of Tagore delivered to some training students in Japan, should be read and taken to heart by every teacher to-day because it seems to me what we need in India for our teachers more than almost anything else, is that our teachers should cultivate the "spirit of the eternal child," and in this connection I would advise every teacher to read the essay on "Childhood" by Francis Thompson.

The teacher of young children should possess a bright and buoyant disposition, and he should have a love and sympathy for young children. I would personally advocate that all the teachers in an elementary school should be women, not because I do not think men are capable of teaching little children, for I know several men teachers who could not be excelled in their dealings with the children in their classes (in my own Kindergarten at Saidapet I have one or two excellent men teachers), but as a general rule women are more sympathetic with young children and are able to bring themselves down to the level of the children more easily than men can. However, I understand that there are many difficulties in the way of elementary schools' being staffed by women, and so men must do their best.

The education of the teacher of young children should include :—

(1) An acquaintance with good literature not only of his own country (although that first) but the classics of other countries as well.

(2) A knowledge of child-nature based on observational child-study.
(3) A study of plants and animals familiar to children.
(4) Some knowledge of elementary Handwork—although this work in the school should be entrusted to a specially trained teacher in Handwork, every teacher should know something of it in order that he may know how his young charges may be most profitably employed during the most important period of their life.

His responsibilities are great, and can only be fulfilled by the exercise of great courage and devotion. He must not only watch the unfolding of the powers and the capabilities of his pupils, but also teach them to love the good and hate the bad, awaken in them new desires, and develop new interests. A teacher must always be a learner, for unless he is constantly taking in knowledge and inspiration, he cannot have much to give out. The earnest and devoted teacher who has real love for his work will perfect and beautify his own character by constantly keeping high ideals in view. Character is not merely having a 'good character;' it goes far beyond that. To feel that men never doubt you or your power to stand the strain at a crisis; to know that all regard your pledged word as your bond; to see that people firmly trust in you because hitherto they have never found you to fail when the trumpet-call came—these are indeed splendid attributes for any man or woman to possess, splendid adjuncts which together form what men far and near mean when they say, 'He is a man of High Character.'

Just another word or two in this connection—Try your very hardest to win and sustain a hopeful disposition, a smiling face. The man who is cheery, the woman who constantly encourages one, the man who can whistle and laugh, the woman whose presence and words are a constant stimulus to further effort—these are the sort of comrades for me in my adventure. I want the cheery soul as my companion when going for a stroll. I like the hopeful fellow to accompany me when I set out on any uncertain effort: I know how grand it is to have by my side the soul who never says 'die' when something great has to be done—and we not only want, to instil the spirit into our children, but we also want them to feel we ourselves

have the spirit that keeps smiling even when things go wrong; that keeps calm and patient when trials distract and dishearten, or try to; that remains cheery and hopeful in the hour of difficulty; that never says 'die' right to the very last gasp.

The Child.

Between the birth of the child and its seventh year, the brain grows with great rapidity. We must therefore take care that there is no mental strain while this growth proceeds so actively, or the result may be bad in after-life. The child cannot concentrate on any one subject for any length of time, hence lessons should be of short duration or of so interesting a nature to the child that there is no effort involved in the concentration.

It is most unnatural for a child to sit still with folded arms and in one place; there should therefore be intervals for movement. It has been shown by the child-psychologists of the present day, that in providing the child with abundance of movement, we are really giving him brain-culture, for the greater the variety of exercise obtained by the young child, the greater is the area of the brain which is developed.

There is also great necessity for as much freedom as possible—now freedom does not mean making as much noise as possible, but it means that the child must not be constantly guarded, watched, told *not* to do this and that, prevented from playing with mud and water and getting, in his own way, the variety of sensations for which he craves. If he is restricted in these ways he will grow up dependent upon others and also poorer in brain power than the child who has more freedom.

Habits are formed in early life and these habits probably influence the whole after-life of the child; we must therefore do everything in our power to lead the child to habits of obedience, punctuality and cleanliness, and to insist on acts of kindness, politeness and gentleness, on all occasions; the force of example is all important, and the teacher must always recognise the child's right to be treated with politeness and consideration.

The effects of repressive discipline on the intelligence of the pupils may be seen by watching a class that has been made to sit still for some time; the children become dull and inert, lose their interest in the subject in hand, and are consequently inattentive and unable to concentrate their powers.

Oppenheim, a modern novelist, warns us that "the physical discipline of making children sit in stiff and studied attitudes is an excellent one to develop a race of puppets."

The Teacher and the Parent.

Unless the school and the home work together, the child is not going to benefit very much from either. The teacher and the parents should try to understand something of each other's difficulties. Unless the teacher knows something of the conditions of the home he will not be able to sympathise fully with the parents; and, on the other hand, if the parents are never allowed the delight of seeing their child in school, they will have but a vague notion of what the teacher does for the child; the teacher, therefore, should make a point of getting to know the parents of his pupils, and he should invite them to school, to see the child actually at work. Besides this, one day in the year may be set aside as "Parents' Day", when all the parents gather together at school and witness an entertainment given by the children (perhaps the prize-giving may take place on that day), and the teachers should move quite freely with the parents. On this occasion I would suggest either the headmaster or the secretary or some other competent person should give a simple ten minutes' talk to the parents about what they are doing for the children and ask the co-operation of the parents for the good of their children.

Teachers' Union.

In a town or city it often happens that there are several elementary schools. I would like to see established in each district a Teachers' Union, with its head-quarters at the largest town and branches in every village. The teachers from the different schools should meet together and discuss different subjects at least once a fortnight, and once in two or three months there should be a big meeting at head-quarters, addressed by some experienced person on a given subject: for example, let each branch in the district study "The Teaching of Geography;" they read up the various books on the subject and discuss them at the fortnightly meetings; then at the quarterly meeting at head-quarters, some geography-specialist may be invited to come down and give his views on the matter; there may be discussions and valuable improvement all round. In connection with the Union there should also be a central library

where all the best and the latest educational books and magazines are kept and perhaps circulated to each branch for a certain number of days; for all this, of course, money is needed, but I do not think that any teacher who wishes to improve would grudge paying about four annas a month as a subscription. Such a Union, I consider, would be a valuable means of help to the teachers.

The articles in this book are all of them written by men and women who for many years have made a careful study, based on observation, of many elementary and secondary schools in this country; no claim to novelty and originality is made; the aim has been to gather from many sources some generally accepted ideas and theories which have been worked out by means of actual lessons in many schools in India, and to present them to the elementary teacher with the hope that he also will be able to work them out in the best way suited to his children.

Sometimes differences of opinion may be found on a few topics. The reason in representing these different standpoints is that the teacher should be acquainted with the several important ideas on the subject, so that he may choose his own. Obviously there can be no finality in the subject.

The chapter by Dr. Chatterjee, "The Health of the Child," will prove useful to those who have neither the time nor the opportunity to make a deeper study of the subject, but who realise the importance of attention to the physical welfare of the children under their care.

But the teacher must remember that no amount of lectures, suggestions, or notes of lessons can make his teaching a success, if he does not put himself and all his energies into the work. "Whoso loves a child, loves not himself but God; whoso delights a child, labours with God in his workshop of the world of hearts; whoso helps a child, brings the Kingdom of God; whoso saves a child from the fingers of evil, sits in the seat with the builders of cities and the procurers of peace."

In some of the articles will be found lists of books that will prove useful both for reference and for the general reading of the teacher. They should find a place in the school-library. Every teacher should make an effort to devote *at least* half an hour in the day to private reading; half an hour in a day is not very much to give up to one's self-improvement and it is

astonishing how much one can get through by the end of one year besides of course getting valuable information, improving one's language and widening one's mind. The lists are by no means exhaustive. The teacher should keep a note-book and note down from time to time the names of books he wishes to read. He should also make notes during his reading, which will be helpful to him for reference on many occasions. The masterpieces of vernacular literature are now (most of them) published in simple language and should also be read by the teacher.

CORRIE GORDON.

CHAPTER I

ORGANISATION AND DISCIPLINE

The organisation of a school is based on three things :—

I. Certain records and other papers in its office.

II. (More important than I) Certain habits formed in the boys and in the teachers. These habits are carried on from year to year by imitation of the elder boys by the younger and so become a permanent part of the school.

III. (More important than I or II) Certain relations of mutual help existing between the headmaster and his assistant teachers, and again, between the teachers (including the headmaster) and the pupils. This third basis of school organisation is commonly called Discipline.

Without this last element all the rest is useless. Good paper-organisation is of no avail if the people whom it concerns do not co-operate to carry it out. We shall however discuss these three subjects in order of increasing importance.

I. The "Paper" Organisation *

The office of a Primary school ordinarily contains the following records :—

(1) *The Teachers' Attendance Register.*—This should be signed by the assistant teachers when they arrive in the morning. They should enter the *exact* time of arrival, and the headmaster should notice whether this is actually done. There should be a clock on the table or in a conspicuous position on the wall in the room where the teachers sign. Teachers should also sign the register when they leave the school after the day's work. As soon as the opening hour of school strikes, *e.g.*, eleven o'clock, the headmaster should cancel with red ink all the blank spaces left by any teachers who have not yet arrived. The common practice is to deduct one day's pay from the salary

* The Organisation of the office is discussed in greater detail in "Indian School Management and Inspection"—K. & J. Cooper & Co., Bombay.

of any teacher who is thus late three times in one month. Headmasters should be strict in this matter, as unpunctuality not only disturbs the work of the school, but is also a very bad example to the children.

Where there is only one teacher in a school, as in the case of very small Lower Primary Schools, the teacher should still maintain this record and the secretary of the school should pay occasional visits to the school to check whether the entries are made correctly.

(2) *The Class Attendance Registers.*—When the teacher has signed the Teachers' Attendance Register he should take the Attendance Register of his first class from the heap of such registers on the table. He should commence calling the roll immediately the bell for the opening of school is sounded. Boys who arrive during the calling of the register should be counted as late, even though their names have not yet been called. The following signs are ordinarily used :—

I	Present.
○	Absent.

The absence sign can be converted into 'Late' by drawing a line across it :— ∅

This is done when a boy arrives during or after the calling of the roll but before the end of the first period. The absence sign may be converted into 'Absence with Leave' by putting a letter L in it, thus Ⓛ

This should be done by the headmaster (or by the clerk at the orders of the headmaster), for leave is granted only by the headmaster.

On no account should the teacher make a dot or leave a blank against the name of an absent boy in the hopes of filling in 'Present' if the boy arrives later. Children cannot be taught to be punctual if they are indulged in this way. In later life the child will get no such indulgence : if his train is at eleven o'clock and he arrives at 11-5 he will miss it, nor can any kind teacher then excuse the consequences of his unpunctuality.

During the calling of the roll the class-monitor should stand facing the class. When a name is called and no reply is made, he should glance round the class and make sure that the boy

is absent: he will then answer "Absent." The others should answer "Present." There should be uniformity in this, for it is confusing to the teacher if some boys answer "Yes," some "Yes, Sir," or "Here," or—as once happened in a school attended by poor boys who sell newspapers in the streets,—"Paper, Sir!"

The Attendance Registers should be returned to the office immediately after the first period. In some schools the Register is sent to the headmaster by the hand of the class-monitor as soon as the roll has been called: all late boys have then to report themselves to the headmaster in order to get marked up in the registers.

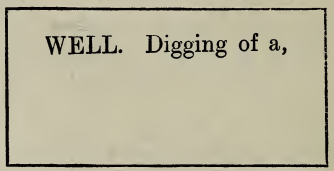
(3) *Leave Register* and (4) *Average Attendance Record.*—In Government-aided schools, or schools which are under the control of a committee or society it is necessary to keep a record of the amount of leave of absence taken by each teacher during each month. It is also necessary to keep a record of the average number of boys present each day during the month and to note what percentage this is of the average total roll. In months in which the weather is good this percentage should not be less than 80. In wet or unhealthy weather it may be less, but usually Indian boys attend schools in their immediate neighbourhoods (indeed if there is not a school within quarter of a mile they do not usually attend at all), hence even wet weather is not a good excuse for a very low average attendance.

(5) *The Admission Register.*—This is a very important book, for on the faithful maintenance of this record depends the enforcement of the rules for admittance and withdrawal of pupils. No doubt many teachers think these rules very unnecessary and consider the filling in of all these columns in the book a mere waste of time. They should remember that the rules are for their own protection: they prevent the dishonestly managed school from enticing away boys from good schools by offers of reduced fees and illicit promotions. It is very important for the child's after-life that the correct age and correct name should be entered in the Admission Register. Parents are often very careless in these matters: they think, "He is only a small infant and it is only a small school," so they give some childish nick-name instead of the correct name, and some mere guess instead of the correct age. When the boy goes

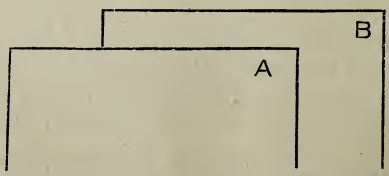
on to the High school there is trouble over the Transfer Certificate. Sometimes the mistake persists in the High School Register and there is endless trouble when it comes to the Matriculation.

(6) *Stock Book.*—A list of all school-furniture should be kept. Discarded furniture should be struck off from time to time. (This requires the permission of the secretary). New furniture should be entered. This list is at once a safeguard for the public to prevent misuse of school property and a protection for the headmaster against any such charge in relation to furniture or apparatus which has become useless and has been discarded. Where the school contains a library, there should be a separate list of library-books, and a record of those lent to boys or teachers, *when* lent and *when* returned. The library list should be checked against the books once a year, by the headmaster. The Stock Book should be checked by the inspecting officer or by the secretary.

(7) *Filing* *.—Letters should be filed according to their subjects : the simplest way of doing this is to take a sheet of plain paper, and write the subject along the top, using large clear capitals. Thus :—

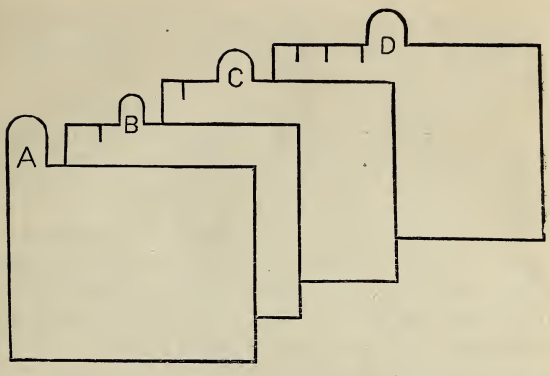


All letters dealing with this subject may be pinned underneath this title-page. These files may be arranged in alphabetical order, a sheet of stiff cardboard being put in to mark off the letters, thus :—



* On methods of filing and correspondence, see "Advanced English Composition." Longmans, Green & Co.

or better



Letters issued should be recorded in amongst the letters received. In simple cases a brief note of the reply (with its date) may be made in red ink on the letter under disposal. In more complicated cases, when the reply is of some length, pen carbon-paper may be used.

(8) *Diary.*—Some headmasters keep a diary of events in the school: this proves useful when it becomes necessary to give an account of the year's work, as at the prize-giving or at committee-meetings or inspection.

Some headmasters keep a record of all the more serious punishments they inflict with a brief account of the case.

In schools where fines are inflicted as a punishment a record is kept under the following headings:—

Date	*Class*	*Name*	*Offence*	*Fine*
Asstt. Teacher's initials	*Headmaster's initials*		*Date of collection*	

(9—12) *Accounts.—Monthly account.* This account shows all items: it should not be abstracted or condensed in any way. Still more important, it must not be 'fair-copied,' nor should the clerk be allowed to make a preliminary 'Rough Copy.' The practice of 'fair-copying' is a dangerous loop-hole for falsification.

For every item of expenditure (over Re. 1) there must be a voucher or receipt of some kind. The loose vouchers should

be numbered serially throughout the year: the number of the voucher should be entered in the account-book just after its particular entry, thus:—

January 24 .. Ink-pot .. Rs 1-3-0 .. (voucher 23).

The vouchers should be kept in a clip or stuck into a book. The accounts should be checked by the secretary or some other member of the committee at least once a quarter; he should initial them as checked, giving the date.

(10) *The Teacher's Acquittance* is merely a book of receipts for pay. Instead of taking a loose voucher as a receipt for pay it is more convenient to get the teacher to sign in a book. The book should show the total pay due, the reasons for any reductions (*e.g.*, leave on reduced pay), and the total amount actually paid.

(11) *The Subscription Book.*—This is not often found necessary, for subscriptions are few and infrequent.

(12) *Scholarship acquittance.*

Certain records relate only to the inspection of the school. These are

(13) *The Visitors' Book.*—Fulfilment or reasons for non-fulfilment of the recommendations made in inspection-reports should be noted on the left hand page.

(14) *The Inspection-Statement File.**—When the school is inspected a statement of the number of boys on the roll, average attendance, average income and expenditure, is presented to the inspector. After the inspection this statement should be filed in the school, where together with previous statements of the same kind, it serves as a record of the condition of the school.

The remaining records are the most important, for they are the basis of the Teaching-organisation. They are—

The Time-table.
The General Scheme.
The Special Schemes.

(15) *The Time-table.*—Certain rules regarding the framing of a Time-table are well known:—Hard and easy subjects should occur alternately: hard subjects should occur soon

* The inspection of a Primary School is discussed in "Indian School Management and Inspection"—K. & J. Cooper.

after the opening of the school or soon after the interval. These rules however need common-sense in their application to Indian conditions. Where a school opens at eleven, so that the child arrives after a walk through the heat, it is obviously better to start with an easy subject, but not one which involves skill of hand (such as handwriting) for the hand will not be steady after a tiring walk in the hot sun. The great thing is to get the difficult subjects into the coolest part of the day: thus they will come first in a school which has an early morning session. The 'Hard' subjects are Mathematics, Language, (*i.e.*, Foreign Language), Vernacular Grammar. Vernacular Literature may or may not be hard: it depends on the method of teaching. Remember that Drill is not a rest; it is just as fatiguing as any other lesson: it does however afford a break in the monotony.

Subjects may also be classified as "Teaching" and "Supervision" subjects. This classification is necessary in schools where one teacher has to attend to two classes, or to two different sections of one class. In drawing up a time-table for a case of this kind it is necessary to be sure that two Teaching subjects never occur at the same time in the paired classes, for a teacher cannot be teaching two subjects at once. Each class must also get a fair share of teaching. A Teaching subject is one in which the direct attention of the teacher is necessary: a Supervision subject is one at which the boys can work alone with only occasional assistance from the teacher.

The Teaching subjects are—

Reading;
Mental Arithmetic;
Geography;
History;
Nature-Study or Object Lesson.

The Supervision subjects are—

Writing;
Arithmetic;
Map-Drawing;
Drawing;
Essay;
Manual;
Educative Games.

Educative Games.—The Infant class is a great problem in

an under-staffed school because it really requires constant attention inasmuch as the children are unable to write. It is possible however to keep the Infant class busy by handing out to each child some simple educative games. Each child tires of his game after a while; exchanges may then be made by the teacher. Examples of such games are—

1. Stencils of letters through which the child may trace on to a slate with a pencil.
2. A board with holes of various shapes in it. Blocks to fit into holes.
3. Cards of various colours: ribbons of various colours: the right ribbon to be tied on to the end of the card of the same colour.
4. Envelopes marked with dots

Cards marked with figures. The correct figure to be put into the correct envelope, *e.g.*,

into

It is necessary of course to change about a good deal: in introducing a new subject in arithmetic to the Supervision class, a Teaching lesson must be given, and the paired Teaching class, which may perhaps be doing mental arithmetic, must be set something else for this particular occasion.

(16) *The General Scheme.*—The General Scheme shows the work in each subject which each class will do in the year. The work is divided up into sections showing how much is to be finished in each term (or in some schools 'in each month:' this depends on whether the tests made by the headmaster to check the progress of the class, are monthly or terminal).

(17) *The Special Schemes* would probably be recognised by the reader if they were called "Notes of Lessons,"—but they are not notes of lessons. In the Training Colleges students often draw out long notes indicating what they intend to do

in a certain single period of 45 minutes. This should not—in the opinion of the writer—be done in Training Colleges, whereas in actual school work there is no question of its being done, for it is impossible.

The Lesson Note for a single period is undesirable because it makes the teacher force the material and the class to fit the time; a lesson which should probably occupy 65 minutes is made to occupy 45 minutes. The class would normally take 73 minutes to understand the subject: they are taught in 45 minutes—as a result several fail to understand. The Lesson Note should be a unit of subject-matter: a very short subject,—such as the reign of a relatively unimportant king—may take only one period: a subject will normally extend over four or five or six periods. It is better so, for large units give to the teaching purpose and continuity.

Another point to be noted is that the Training College student with his Notes of a Lesson nearly always looks on his lesson as a personal display, a "tamasha" that *he* will perform while the class looks on. The practical teacher with his Unit-Note thinks of the unit as a section of the work which *his pupils* have to do.

The individual teacher's scheme will then divide up the term's work into separate subject-units and show roughly how many periods are allotted to each, allowing a certain margin for revision. With regard to the unit that he is about to begin he shows how he intends to treat it. The notes will fall into the following sections:—

Announcement of problem and preliminary explanation;
Discussion of how the problem is to be attacked;
The class is set to study the subject;
The results of the study are checked and discussed;
The knowledge thus acquired is applied to the problem.

This form is a useful one for most units, but not for all. It must not be made a *Mantra*, a charm, like the "Preparation, Presentation, etc." of Herbart of which we are all so weary. For a lesson whose aim is skill—*e.g.* Handwriting— the form will be different:—1. Explanation of Technique (How to do it). 2. Preliminary Practice with checking to prevent wrong methods. 3. Practice. 4. Competitive test.

The notes will always show what Home-work will be set after each lesson.

A careful teacher may note in his book a brief account of what happened—which children are not quite sound on the subject, any mistakes made in directing the work of the children, and notes for the teacher's own future guidance.

These special schemes should be taken into the class-room with the teacher : if the headmaster visits the class and wishes to make any note for the guidance of the teacher he will do so on the Special Schemes.

II. Habits

We now leave written records and come to Habits. In dealing with large numbers it is always necessary to produce some sort of uniformity : it saves time ; it prevents confusion ; it gives a sense of corporate life. Hence a certain amount of Drill-movement is desirable in school. Moreover the children like it and it gives the elder boys some training in command. Drill-movements with fixed and formal orders may be used for the collection of exercises, in teaching mental arithmetic, for dismissing the class, for making the class stand on the entrance of the teacher, for marching the class out to Drill. The teacher should not give any of these orders himself : he should tell the boy monitor in a quiet voice or by a mere sign what is needed : the monitor will then do the rest himself.

It helps school work also to introduce a certain amount of routine into the ordinary necessary things, the signing up of the Teachers' Attendance Register, the calling of the Roll, the entering of marks, the collection of Home-work ; these should be done in a fixed way which in time becomes automatic and the children will take a pleasure in doing the movement together, smartly, and well. It should be made a form of play under a boy leader, not a form of militarism enforced by the teacher.

III. Discipline

The first essential is Discipline of the teachers. They, as well as the boys, need to understand that for the sake of co-operation and efficiency it is necessary to carry out orders without argument even if one does not entirely agree with them.

It is not slavish obedience that is needed but eager co-operation, eager desire to make things as easy for the headmaster as possible. Suggestions will always be welcomed by a wise headmaster, but there is a kind of assistant teacher who can never accept an order without giving his opinion on it: such teachers set to the boys an example of bad discipline.

The teacher who has the self-control to obey, has also the self-control to command, but school-discipline does not—or should not—need a great deal of commanding. Boys at the Primary stage are usually far more quick-witted and more eager to learn, less critical of their teachers, than those in the higher grades. Only one thing they will not tolerate, and quite rightly so: that is lack of employment.

Bad discipline arises from

A. Faults of Personality—
   1. Harshness.
   2. Levity.

B. Faults of Class-management—
   1. Untidiness.
   2. Individualism.
   3. Monotony.

C. Faults of Teaching—
   Unemployment.

A. Faults of Personality.

Some teachers assume that the children have a rooted objection to learning and are continuously set on misbehaviour, they therefore adopt from the first an attitude of severity and repression. Such an attitude is actually provocative of misbehaviour: the child sees that he is expected to misbehave and accordingly does so. Certain teachers, at the other extreme, endeavour to keep the class interested not by making the work interesting but by trying to make themselves interesting by foolish behaviour. Both faults arise from the same cause—self-consciousness. Teachers are the link between the class and the work: the less conspicuous they are, the less of an obstacle they are. The self-conscious, conspicuous teacher develops from a link into an obstacle over which the children have to climb in order to get at the work. Let the teacher look upon himself as a mere organiser of the children's activity: let him do nothing which they can do, say

nothing which they can say; and let him remember that most children *do* want to work if only the work is made reasonably interesting, and all work is interesting if one can do it oneself. Nothing is dull, except doing nothing—sitting and listening is dull; hard sums that one cannot work out are dull; absurdly easy work that needs no effort of the mind is dull. But all real activity and exercise is interesting.

B. Faults of Class-Management.

Untidiness obstructs work by causing disorder. There should never be more than one child standing at once (unless of course the whole class is standing out in line). A child should stand to answer, but having answered *or failed to answer*, he should sit without awaiting an order to do so. Desks should be clear of books: nothing should be before the child but the actual work of the moment. After a short spell of brisk oral work a class begins to look untidy even though all the children are sitting, for some are talking, some half-standing, some leaning forward. Let the teacher then give the order, 'Sit straight,' pause silently a moment, and then take a fresh start.

Individualism results in neglect, hence unemployment, hence bad discipline. If the teacher devotes his whole attention to the child, he must necessarily be turning it away from the rest. Do not go to a child's desk, for you cannot see the whole class from there; go to your own desk and call the child to you. Do not question the child who is reading, for he is already employed, question the others. Do not look at the child who is reading for you know what he is doing, look at the others. Do not let all the clever children sit in front: they will get attention wherever they are; let the dullards sit in front, and be sure to give them a fair share of your attention.

A very good scheme is to get someone to watch your lesson and take a score every ten minutes to show what each child is doing. Thus:—

	Time : 12–47 P.M.						
Reading ..				1			8 employed or 40%.
Writing ..	1						
Listening ..	1	1	1	1	1	1	
Playing ..	1	1	1				12 unemployed 60 %— Bad!
Talking ..	1	1	1	1			
Doing nothing ..	1	1	1	1	1		

A subject in self does not usually become monotonous: it is the treatment that becomes monotonous. A few minutes' listening is pleasant after a spell of writing, but a lot of listening is very monotonous. Alternate speech and writing; introduce, especially in the cold weather, some standing as a change from sitting, *e.g.*, stand out in a line for mental arithmetic.

A very good lesson-scheme is 10 minutes' talk or reading, then 5 minutes' rapid written answers on it.

A rapid written answer is usually carried out as a Drill-movement. The following orders are given "Pens! ..... Where was Akbar born? ....Write! .... Pens down! .... The Sind Desert.....Hands up those who are right."

C. Faults of Teaching.

There is only one fault—and that is TEACHING. Do not teach: get the children to learn. No one can learn for another. Our brains and our muscles are our own and no one can exercise them but ourselves. All that the teacher can do is to give the child opportunity for learning. All the teaching he can do is to teach the child how to learn, and children cannot learn by listening to a half-hour lecture, a half-hour of talk, talk, talk! Very few children can listen for more than ten minutes, and even then they do not remember what they have heard unless they are given an immediate opportunity to express it in writing, or in speech, or in action. We do not learn from what we hear: we learn from what we do. In a year's time you yourself will remember nothing of this article except a few little bits that you may have tried to put into practice, or that you may have repeated to someone else.

What is true of morals is true of education: education is not what goes in, but what come out.

This motto hangs above the door of the Chittagong Normal School:—

WHO SAYS LITTLE but makes the children say,
WHO DOES LITTLE but makes the children do,
IS A GOOD TEACHER.

It is worth books, and books, and books of "Method."

MICHAEL WEST

CHAPTER II

THE BABY CLASS

THE Elementary school-teacher finds one of his most difficult tasks, when he comes to deal with the Baby Class or what is known now as the first standard. I have often entered this class in different elementary schools, only to see the teacher sitting on a high chair looking very bored and the children sitting in front of him, pretending to read or write, and feeling no doubt even more bored than the teacher does. I have sympathised more with these children than with the teachers, and I intend in this article to deal with the Baby Class and how to make it—(what it is)—the most important class in the Elementary School.

Our first duty is to provide for this class a bright, airy and spacious room, in which *all* the windows and doors are kept open. The floor may be covered with mats, where the smallest children can sit and amuse themselves in groups; and the furniture should consist of small chairs and light tables, which may be moved about quite freely when necessary. There should be some playground-space, a part of which should be set apart for use as a garden, so that much of the time may be spent in the open air; and, lastly and most important of all, the teachers (preferably women) should be enlightened, suitably trained, and sympathetic. To put fifty or sixty children into one class-room and make them sit motionless is a barbaric act of cruelty, and to entrust them to the care of unsympathetic teachers or ignorant teachers is a sacrilege. The question then arises, How shall these young children be employed?

Our study of the child has taught us that he must have movement: not only his later physical development, but also his later mental life depends on the use of his muscles. He must not be kept under restraint for too long a time, hence both morning and afternoon there should be a period in the time-table set apart for games.

Also the child imitates naturally and unconsciously whatever he sees around him; therefore we must give him good models to imitate.

Nature-Study.

The first item on the programme of the Baby Class should be Nature-study. Children delight in living things around them; therefore they should be surrounded by animals which they can not only play with but also take care of, feed, etc. Among the various pets that may be kept in a school are birds of various kinds, rabbits, small dogs and cats. It is sometimes found to be impossible to keep the pets in the school: then the children should be encouraged to keep them at home and bring them as visitors to the school, or one of the school-servants may be willing to keep them for a small remuneration. Children should also be encouraged to notice the cows, sheep and horses that may be seen grazing in any large field near by.

Another item of Nature-study in the Baby Class is walking in any field or compound near by, where they may observe the trees in the different seasons of the year; and they may be encouraged to collect flowers, leaves, seeds, fruits, etc., which they see, and bring them into the class-room and put them into one or two vessels or vases which are kept for the purpose. Other natural objects also may be collected during the walk, such as shells, stones, seeds, etc.: these may be kept in a glass case in the class-room and be called the Museum of the class, because although all these things are very ordinary to us grown-ups, they are very "rare" to the children.

Children should also play in the garden, sow their own seeds, water the plants, and pick the flowers; and they should be encouraged to notice the sun, moon, stars, the clouds, the rain, the sunset, the rainbow. At the end of their excursion they may be allowed to lie on the grass under a shady tree and either sleep or rest for a few minutes and realise the perfect peace of nature.

Physical Training.

A very large proportion of the time should be spent in recreative movements, which include games, marching, running, hopping, etc. Breathing exercises should be done at least twice a day, but these should be done in an interesting way.

1. *Blowing up a feather.*—Children stand in a circle, take in a deep breath, and blow a small feather up in the air.

2. *Blowing up a small coloured balloon.*—The teacher holds a small balloon tied to a piece of string; the children arranged

in a circle as before breathe in and then blow the balloon up in the air. This may be repeated several times.

3. *Blowing Soap-bubbles.*—This affords the children a very happy time, and correct breathing may be insisted on.

Care must be taken to see that the lips are closed during the inspiration of the air in all breathing exercises.

Games.—See the article on "Games:" most of the games may be played and enjoyed by the little ones. Also in my book "The Kindergarten System" I have suggested several games suitable for this class.

Language-Training.

One of the most important items in the Baby Class is language-training. To increase the number of words that a child uses naturally and habitually is to improve his mental power.

Every day at least fifteen minutes should be spent in informal conversations (commonly called "News" in the Kindergarten) in which the teacher takes the part of a sympathetic listener, and keeps in the background letting the children do most of the talking and merely guiding and suggesting as occasion requires. These conversations should keep close to the children's interests, and should relate to the life in their homes, in the street, or in the fields, to the doings of the children, the life of their animals or to any other interest in their lives. The teacher himself must take care to speak correctly and carefully as the child possesses very strong powers of imitation, and readily learns the words he hears used around him.

Stories will be found a very valuable means of imparting a language-lesson, and every day a story should find a place in the programme. The first stories should be very short and should deal with familiar objects, and sometimes with animals and flowers. As the child gets more used to stories, they should be made longer and deal with subjects of wider range.

After every story has been told, one or two children should be asked to repeat the story, all the other children paying great attention and correcting if necessary. The children may be also asked to dramatise the story if it lends itself to that, or in some other way (by drawing, clay-modelling, or in the sand) to express what they have heard.

Rhymes of a simple kind may also be taught to the children and they may either repeat them or sing them. In my

book "The Kindergarten System" I have suggested several rhymes which these children might learn and several stories which they may be told with advantage.

Reading.

In this class no reading should be done from a printed book, but the "look and say" or "picture" method may be adopted. The teacher first of all tells the children the names of different articles in the class-room, *e.g.*, chair, table; he then writes these words on the black-board in large clear letters and the children draw what he has written: they thus learn to associate certain words with certain objects and pictures. A good game to play with the children is for the teacher to write out on different slips of paper the different objects in the room, all these slips are placed in a heap on the table, and each child is asked to take one slip at a time, see what is written on it and place it on the object which bears that name. Names of the children may also be chosen.

Reading may also be taken in connection with Story. For example, in the "Three Bears" the story may first be told very simply: then the teacher will tell the children that they are now going to make a word-picture of the story:—"First of all there was a large forest"—the word FOREST is written up in large letters on the board. "In the forest there is a small house" —the word HOUSE is written on the board. "In the house lived the three bears, who had gone for a walk into the forest"—THE THREE BEARS is next written on the board, and so on until a picture like the following appears on the board:—

TREES		TREES	
	FOREST		FATHER BEAR
	HOUSE		MOTHER BEAR
	GIRL		BABY BEAR
TREES		TREES	

The teacher then writes in large letters any short sentence dealing with the above "picture" and the children read it, for example —

THE HOUSE WAS IN THE FOREST
TREES ARE IN THE FOREST
THE BEARS LIVED IN THE HOUSE
THE GIRL WENT INTO THE HOUSE

When the children can read these sentences quite correctly, the teacher may (at home) write them in a manuscript book which each child has, in large letters and coloured ink, and at the next lesson the children are asked to read the sentences. This of course alludes to vernacular reading.

Handwork.

The handwork chosen for the Baby Class will need to be very varied in character, because these little ones soon tire of doing one kind of work.

1. *Building with Bricks.*—This is an occupation which is universally used and enjoyed in every baby class. The bricks should be large, not less than 3″ cubes and of different shapes. A few larger bricks, 6″ and 9″ cubes and oblongs in proportion, may be used. Any local carpenter will make these bricks from his waste wood. There should be at least 500 bricks in every baby class, and they should be kept in an orderly way in a box kept in the class-room; the children themselves must be responsible for the tidiness of this box.

2. *Sand-work.*—In one corner of the playground, preferably under a tree, there should be placed two or three cart-loads of river or sea-sand; here the children should satisfy their instincts for digging in the sand. This forms an excellent basis for group-work in connexion with stories or nature-talks. There should be a few toy spades and tin buckets placed in the heap.

3. *Drawing with chalk.*—As soon as children are ready to make their work more permanent, some black-board chalk may be given them and they may be asked to draw quite freely anything they have seen or heard. Each child should have a small black-board which should be hung by a ring onto a nail on the wall; the black-boards should be quite light so that the children may themselves fix them onto the wall, and put them away in a certain place when they have finished. Later in the year, the children may be allowed to draw with chalk on brown paper.

4. *Modelling in clay.*—This is an excellent material; the work should be quite free at first, any child making just what he likes, but when they are used to the clay they may be asked to model a given thing, such as a mango or brinjal or plantain.

5. *Paper-cutting.*—Children may be allowed to cut out with blunt scissors pictures from advertisement-books and

then paste them onto brown paper. They may be also allowed to make paper-chains to adorn their class-room and to do paper-weaving with brown and coloured paper.

Playing with Toys.

There should be a period in the time-table when the children are allowed to play with toys (called Free play in the Kindergarten). These toys should include a swing which may be tied to a tree in the garden or play-ground, dolls, wooden animals, carts, trains, hoops, balls, etc. These toys should not be expensive or of elaborate workmanship, in fact *all* of them may be made by the local carpenter or the teacher himself. At this stage the child needs a large variety of sensations. It is only by doing and feeling that his whole nature can be developed. If we wish his mental life to be rich and full, we must give him the means of obtaining numerous and varied sense-experiences.

Pictures in the class-room.

The child's love of pictures is well known; and as we teachers recognise the child's right to all the joy and happiness we can give him, we must not deny him the delight of looking at pictures. These pictures must be within the comprehension of the child. Children love pictures showing life, movement and vigorous action, and their favourites are scenes of children, or of animals, or of children and animals together; they also prefer coloured pictures to black and white ones. Let us then have a few well-chosen pictures, which should be large and hung where the children can easily see them; also they must not hang in the same place for a long period, because after a time the children do not notice the picture. Whatever we do, however, we must not have badly drawn, hideous pictures which one sees in many places; let us rather choose reproductions of fine pictures by great artists, and if the school authorities are narrow-minded enough not to grant us any money for the buying of them, we can collect them from magazines, etc., and request our friends to do the same for us.

I have now come to the end of my article, and I hope I have succeeded in letting the teacher of the baby class see how interesting he can make his class. What if his co-workers in the upper classes think he has the most unimportant work to do! He knows that it is only on the right foundation that he lays, that the perfect structure can be completed, and let him go on

doing his work to the very best of his ability and "live for his children."

Suggested Programme of work for Baby Class: age of children 4 to 6 years.

	Monday	Tuesday	Wednesday	Thursday	Friday
10 A.M.	All children meet in class-room, Register taken, inspection of clothes, washing of hands, faces, etc.				
10-15 A.M.	Nature study walk.	Gardening.	Pets and Observation.	Nature study walk.	Gardening.
10-45 A.M.	Short rest for ten minutes. Children may go out to drink water, etc.				
11 A.M.	Language			News	
11-15 A.M.	Story				
11-40—12	Expression of Story				
	Interval				
1-30 P.M.	Register			Wash hands, etc.	
1-40 P.M.	Language			Reading	
2-10 P.M.	Bricks.	Sand.	Clay.	Drawing.	Cutting.
2-40 P.M.	Games, marching, running, etc.				
3-10—3-40 P.M.	Free play with toys				

Note—Each Session should last only two hours.
All work should be done in the mother-tongue.
The teacher should keep a nature-diary, noting down observations and dates.

The teacher should also keep a note-book, noting detailed work done by the children.

Any child who is tired should be allowed to sleep on a mat which should be placed in a corner of the room where he will not be disturbed.

One or two buckets of water should be kept in the playground for the children to wash their hands and faces, and a towel should be hung up on a nail just outside the class-room (the towel must be clean twice a week) for children to dry their hands.

A pot of drinking water may be kept in the class-room for children's use.

CORRIE GORDON.

Books for Reference

The Kindergarten System	*C. Gordon.*
The Child and his Education	*C. Gordon.*
The Children's Garden	*Chandler.*
The Indian Kindergarten	*Gillingham.*
The Kindergarten Guide	*Bates.*
The Montessori Method	*Dr. Montessori.*

Handwork

Paper Modelling	*Swannei*
Toy making in school and house	*Polkinghorn.*
Handwork in Early Education	*Plaisted.*
Educational Handwork	*Alfred Jenkins.*

Games

Games with aims	*Watson.*
Games without music	*Bates.*
Handbook of Games	*Bengal Educational Department.*

CHAPTER III

READING AND WRITING

Reading

Introductory.

Reading is the chief means by which we can become acquainted with what lies outside our own experience, and understand what has been expressed by other people. In reading we have the key that unlocks the treasure-house of human knowledge. Reading is not an easy subject to teach, because the characters or letters of the words do not always suggest the idea of the sounds for which the characters stand; sometimes one character has different sounds, sometimes the same sound is expressed by different characters, and sometimes the characters or letters have no sound at all. The earlier stages will be concerned with the overcoming of the mechanical difficulties of the subject, so that the child may readily recognise the printed words and give them their proper sounds; while the later stages will be concerned with enabling the child to read aloud in a manner that gives pleasure to the listener, and shows that the child understands what he reads.

Method.

The old method was that known as the alphabetic method, in which the alphabet was learnt first, and then the names of all the letters in a certain combination were given, and the pupils were told that those names made a particular word, for instance S—(ess), I—(eye), G—(jee), N—(en) made the word SIGN. This method will not detain us long, as in every up-to-date school it is now no longer in use. There is no need to learn the alphabet as a whole, but a few of the more commonly occurring consonants will be used in conjunction with the vowels to form simple words, the meaning and sound of which the pupils already know. The names of the letters will not be given at first, but the words will be dealt with as wholes, and the names of the letters will be taught after the pupils are able to recognise several words by sight, and realise that sounds similar when spoken, are similar in the written

symbols of the sounds, thus the words, PAN, FAN, TAN, MAN, VAN, and CAN all have the sound "AN," which is represented by the two letters A and N. The sounds and names of those two letters will then be taught. Similarly with other letters, thus COT, HOT, GOT, NOT, POT have the same sound, and the letters O and T will be taught.

In these early stages the black-board should be used, differently coloured chalk denoting different sounds. The words should be put into sentences, and simple drawings on the board should be made, or good reading-sheets used. It is better for the teacher to make his own drawings on the board as it adds greatly to the interest of the work when the pupils see the 'man' or 'can' or 'pot' or 'cot' being drawn on the board before their eyes. Teachers who are conscious of their lack of ability to draw, should practise the art as no trouble should be too great for one who desires to be an efficient teacher. All the work of the early stages should be done by means of the black-board or reading-sheet, and books will come into use later; when new and unfamiliar words have to be introduced. All good reading-books make a point of gradually introducing new words, and in teaching the pronunciation of these, care should be taken to draw attention to the sounds in the words, and not to the names of the letters; thus if the pupil comes across the word "preliminary," the five distinct sounds, each of which will be familiar, will be pronounced separately. To ask a pupil to spell a word in order to pronounce it, is a bad plan. There are many simple words, the pronunciation of which can in no wise be known from the letters: these will simply have to be told to the pupils and remembered by them, *e.g.*, one, eight, might.

Essentials of good Reading, and how obtained.

The essentials of good reading are four in number (1) Accuracy of pronunciation, (2) Articulation and distinct enunciation, (3) Fluency, (4) Expressiveness.

In endeavouring to secure these, the following points should be noted:—

(1) Accuracy of pronunciation depends mainly upon the correct sounding of the vowels: so it is important that these should be properly taught. In Ceylon the most common failing

is in the vowel 'O' which is pronounced as 'AU,' thus 'note' is sounded as 'naut.' Teachers should be on the look out for common failings, which can be remedied only by continual practice in the correct way of pronunciation, especially in the early years of school life.

(2) Clear enunciation depends chiefly upon the correct sounding of the consonants, which are often mispronounced by young children because they have not complete command over their vocal organs; and so they require showing *how* the right sound is to be produced. Consonants are also often slurred over, or omitted altogether. Here the teacher should note words which are usually badly pronounced, and give plenty of exercises on them.

(3) Fluency depends upon familiarity with words, and practice in reading aloud, combined with a good command of the vocal organs. Here it should be borne in mind that plenty of practice is needed, particularly in the lower and middle schools.

(4) Expressiveness depends on several factors, notably (*a*) intelligence, (*b*) emphasis, (*c*) pause and rate, (*d*) phrasing.

(*a*) *Intelligence* or understanding of the passage read, is best secured by allowing the pupils to read the passage silently first before reading it aloud and by a short talk on the subject-matter, and by allowing the pupils to give the substance of the matter in their own words.

(*b*) *Emphasis* is the prominence given to certain words or parts of a sentence to make the meaning clear. Even the simplest sentence may vary by altering the emphasis, *e.g.*, "Are you walking to Madras to-morrow?" may have six different meanings according to the word which is made emphatic. The teacher should show the pupils where to place the emphasis, first however allowing the boys to try for themselves. If too many words are emphasised, the reading becomes pompous and not natural. A natural pleasant style is what is required.

(*c*) *Pause and rate* are points that require attention. In the early stages children should be taught to "mind" their stops, but often a pause is not indicated by the punctuation, and the pupils in the higher classes should be taught to regard the

sense of what they are reading and to pause accordingly. By a proper use of pausing the pupil is able to read for a longer time without fatigue, and is better able to comprehend what he reads. When children can read fluently they are always tempted to read rapidly. Insist on the pupils' reading with deliberation.

(*d*) *Phrasing* is closely connected with pause. The words that in themselves give a mental picture should be grouped together. Thus in the following passage from the Clarendon Geography a dash is placed after each group of words that gives a mental picture. "The life of the great towns—is very different—from that of the villages.—India has been conquered—and re-conquered so often—that there are innumerable great cities—many of which are,—or have been,—the capitals of princes—who grew rich—on the labour of their peasants."

Pattern-reading.

This is sometimes condemned, as tending to produce a wooden unintelligent kind of reading among the pupils, but if the pupil cannot read well, the teacher should read a passage and then get the boy to imitate him. The boy should first be allowed to try by himself and when he fails the teacher should step in. If there are a few good readers in the class, one of these can with advantage be called upon to give a "pattern-reading." The length of the passage read by the teacher as a pattern, will increase with the age of the pupils.

Silent Reading and Reading for Matter.

The boys should be given five minutes to look over the lesson before the reading aloud begins, so that they may form some idea of its character and may master the difficult words. It is scarcely fair to ask a boy to read "straight-off" without any preparation. It is a good practice to have, at least in the higher classes, one lesson of about forty minutes devoted to "silent reading." Sometimes the boys may all read the *same* lesson silently, and the teacher should then question them to see how much they have read and how far they understand what has been read. If there is a class library, *different* books may be given out, and the teacher may go round and have a simple chat with a few of the boys individually on what they are reading. Most of the reading that

the boys will do after they have left school will be "silent reading," and if training in this kind of reading is not given during school days, the boys will be deprived of one of the best means of spending their leisure, when they have left school, and will be unable to enter the treasure-house of literature. Every school should possess a suitable library, and where finances permit, a class library should be established, and the boys guided in their private reading. Here a caution may fitly be given. It does not always follow that a boy has read the book which he has borrowed from the library. He may borrow the book to give the impression of being a reader of books. From time to time the boys should be questioned either orally or on paper about the books they have borrowed.

Backward children.

These require constant care and the causes of the backward state ascertained, and, where possible, remedied. Occasionally the backwardness is due to physical defect and here a doctor's advice is desirable. Ordinary backward boys should have extra practice, either under the supervision of the teacher himself or a good boy. It is a good plan to jot down in a note-book the chief defects of individuals, and work away on them. Above all sympathy should be shown, so that the boy realises that his teacher is his friend, sincerely desirous of helping him.

Reproduction of what has been read.

The boys should constantly be asked to tell in their own words the substance of what they read. In this way the Reading Lesson will be linked up with the Composition, and occasionally written exercises should be set, simple in character, to test the boys' knowledge. No better subjects can be found for composition than the topics treated of in the History or General Reading Books. Where the lesson lends itself to the purpose, it should be dramatised, or little dialogues constructed. This adds greatly to the interest of the lesson, and if the boys themselves frame the dialogues, it is all the better.

Reading Books.

There are many good reading books published. The teacher should consult the publishers' catalogues, and examine the various Readers carefully before deciding. Besides a general Reading Book, the boys should have a continuous Reader. Herbert Strang's Readers are admirable, being interesting and well-written.

How to take a Reading Lesson.

This will vary slightly according to the class. In the lower classes more time should be devoted to overcoming the mechanical difficulties of Reading, while in a higher class intelligent and expressive Reading is to be aimed at. The following notes are those of a lesson given by a second year student in training at the Government Training College, Colombo, and illustrate the method which has been found to be productive of good.

NOTES OF LESSON

Class.—St. V. *Time*—45 minutes.

Book.—The Story of Francis Drake (Oxford University Press).

Aim.—To enable the class to understand the substance of the section set for the day (pp. 35, 36) and to read it intelligently.

Preparation.—Question the class on what they read in the previous lesson, *e.g.*, Why did Drake not go further on his return-march? Why did the Captain send up the pinnace? What happened six weeks later?

Presentation.—Relate the substance of the day's lesson in vivid language. Introduce during the course of narration the phrases "disappeared from view," "put on his thinking cap," "acting on this supposition," "go into the common stock," "groaned under the weight," etc., in such a way as to bring out the meaning clearly. Give oral drill in the pronunciation of the more difficult words in the lesson. Let the class read silently for a few minutes.

Application.—Let some of the boys read the lesson aloud, paragraph by paragraph, and get them to give the substance of what they have read. Carefully correct all errors.

Books recommended for reading.

The Heroes	*Kingsley.*
Fairy Tales	*Anderson.*
King Arthur and His Knights	*Malory.*
Pilgrim's Progress	*Bunyan.*
Alice in Wonderland	*Carroll.*
Folk-Tales of Bengal	*Day.*
True Tales of Indian Life	*Dwegindra Nath Neogi.*

Stories from Grimm	*Jack & Co.*
Nursery Tales	*Do.*
Just So Stories	*Kipling.*
Jungle Book I	*Do.*
Do. II	*Do.*
Water Babies	*Kingsley.*
Blue Fairy Book	*Lang.*
Green Fairy Book	*Do.*
Red Fairy Book	*Lang.*
Stories for the Story-hour	*Marsials.*
Stories to tell to Children	*Bryant.*
Sacred Tales of India	*Neogi.*
Cradle-Tales of Hinduism	*Nivedita.*
Wild Animals I have known	*Seton.*
Indian Story Book	*Wilson.*
Arabian Nights	*Jack & Co.*
Age of Fable	*Bulfinch.*

Writing

Introductory.

The importance of this subject is recognised by all, and it is an art in which all can reach a high standard, if they only persevere. Progress in many of the school-subjects can be ascertained only by careful examination, but progress in writing can be seen at a glance and the reputation of a school from the parents' standpoint, depends largely upon the character of the boys' writing. Some people think writing is difficult to teach, and that some boys cannot help writing badly. Such is not the case. Where the writing is bad, it will be found that details have not been attended to, and that teachers tell the boys "to go on writing," and think that is sufficient. Writing is a mechanical art and boys become proficient in it only by practice under careful supervision.

The marks of good writing.

The marks of good writing are three, Legibility, Rapidity, and Beauty. The most important is legibility. Writing that is difficult to read is bad. Legibility is affected by the shape of the letters, their size, and their distance from each other; also by the slope and uniformity of the writing. Letters should be rounded rather than pointed, should be fairly large and placed at a uniform distance from each other. Legibility is often spoiled by joining

words unnecessarily. With respect to the slope of the writing, there are two styles now in common use, (1) the vertical and (2) the semi-vertical or slightly forward slope. The teacher must make up his mind which he desires to adopt in his school, and adhere to it. The backward slope and the extreme forward slope have little to commend them. The vertical style perhaps is more legible, but the slightly forward or semi-vertical style seems more natural, and on the ground of rapidity is better. I personally favour the slightly forward slope of about 10°.

Rapidity comes from practice and no attempt should be made in the early stages to get quick writing. The position of the body, the manner of sitting, the way in which the letters are joined, and the absence of flourishes are all important in this connection.

Beauty is a matter of taste and depends upon the style and the character of the writing in detail. It must strongly be borne in mind that as far as schools are concerned, legibility is the great point. The other things will come later.

The pupil's posture is very important for reasons of health.

Posture and holding of the pen.

The body should be in an easy position directly in front of the writing, with the back straight. The following are the rules posted up in the rooms of the Training College Practising School, Colombo, for the guidance of students.

I. The boys should sit upright, not leaning against the edge of the desk, but nearly parallel with it. There should be no leaning one way or the other. The boys should not be allowed to rest their heads upon their left hands.

II. The book should be placed with its edges parallel with the desk, but slightly to the right of the body, so that the pen may point towards the right shoulder.

III. (*a*) The pen should be held between the first two fingers on the one side, and the thumb on the other.

(*b*) The fore-finger should rest on the top of the pen.

(*c*) The pen should be held lightly and not too near the nib.

IV. Great attention should be paid to securing—

(*a*) Uniformity of size of the letters :

(*b*) Uniformity of slope :

(*c*) Correct shape of letters :

(*d*) Proper curves and joinings of the letters.

Early stages.

The letters should be taught first on the black-board, so that the boys can actually see the letters being made, and their attention can be drawn to the way of making the letters, the spaces, slope and joins. It is advisable to teach the small letters first as being of more common occurrence. Letters that are similar in shape should be taken together. The following classification is suggested :—

(1) *i, u, m, n.*
(2) *o, a, d, q.*
(3) *l, h, b.*
(4) *t, p.*
(5) *w, v, r.*
(6) *j, g, y, f.*
(7) *c, e, k, s, x, y.*

Later on the capital letters should be grouped according to similarity, and where there are two or more forms of the capital letter, that form which can be written without lifting the pen and which is simpler should be adopted.

All work in the first stages should be done by the boys in pencil on paper. Slates are sometimes used, but they have serious disadvantages, and I personally am opposed to their use.

Later stage.

After the boy has learnt to make his letters and words with pencil on paper, he should be introduced to pen and ink. Here the teacher must be very careful to see that the right kind of nib is used, and that the pressure upon the two parts of the nib is equal. It is a good plan for the teacher to lend the pens, or at least to see that suitable nibs are used.

Copy-books.

Copy-books should be chosen carefully and the style of the writing should be in conformity with that taught in the first stages. A few lines written each day are better than a lesson once a week. Mistakes should be corrected by the teacher with a pencil. In no case should boys open their books and simply write without any supervision being exercised.

Transcription.

Transcription is a valuable exercise, and one of the aids to learning to spell. The attention of the boys should be drawn to the words that are difficult or unusual, and they should transcribe phrases rather than single

words. Spelling-errors should be corrected, and the correct form of the word written out four or five times. The size of the writing should be about a quarter of an inch. Small writing should not be allowed; but nothing is gained by practice in writing "large hand," which is never required afterwards in ordinary life.

Dictation. Passages set for Dictation should always be from a lesson which has been prepared by the boys. Mistakes should be corrected by the boys themselves, but afterwards supervised by the teacher, as boys unconsciously leave mistakes uncorrected. Attention to the posture of the boys, and to the holding of the pen is as important in Dictation as in Copy-writing. Occasionally the boys may exchange books for purpose of correction. Names of persons and places that occur in the History or Geography lessons should be dictated and the correct spelling learnt.

Composition. Writing is but a means to an end. The expression of what one has to say will be taught first by oral composition. This is discussed elsewhere. In connection with composition the subjects chosen should be those which are familiar to the boys. Abstract topics should be avoided. Short accounts of the lives of people that are mentioned in their history-books, descriptions of pictures, and events such as the last prize-giving, the school sports or any local event will do very well.

Letter-writing is an important branch of composition and the boys are helped thereby to express themselves. Advertisements in the local papers, especially those in which a clerk is required or in which there is something especially interesting to the boys will supply material for a brief business-like letter. Short sentences to show how certain words are used, are also useful exercises from time to time.

Miscellaneous. Certain points require attention if the writing in a school is to be satisfactory. The desks should be suitable: a boy cannot write well if the desk is too high or too low for him. The writing paper should be of fairly good thickness, and blotting-paper should also be used, but for two purposes only (*a*) to rest the hand upon, so as to keep the paper clean, for in the East the hands perspire more than in England, (*b*) to dry the writing when turning over a

new leaf. The habit of blotting every line, which is often observed, is wasteful and should be rigidly checked. The ink used should be good, and not too faint; ink dries up quickly in this country, and it is good to have ink-wells with covers, where possible. The habit of shaking the pen onto the floor instead of into the ink-well, should be checked in the interests of cleanliness.

Sometimes in schools very good copy-book writing is seen, and poor work is found in the dictation and composition-exercises. That is due to failure on the part of the teacher to exercise efficient supervision. The real test of the writing of a school is in the ordinary written work done under the usual every day conditions. A practice common years ago was to set as a punishment a few hundred lines. It is a bad custom and should never be practised. It is better to set a few pages of a copy-book, or some transcription properly done, or a mapping exercise.

The teacher should not dictate notes at such a rapid rate that the boys are unable to write them properly. He should keep a vigilant eye on all written work whether in Arithmetic or Geography or Nature-study, and never excuse carelessness in writing. Lastly writing on the board must be neat and good, for children are unconscious imitators and if the teacher writes badly, the boys cannot be expected to write well.

G. E. HARDING.

CHAPTER IV

NUMBER WORK

The importance of the teaching of Arithmetic is universally recognised—

1. For its use in everyday life.
2. For its value as mental training.

The notions of number that children below the age of seven years are able to gain, are necessarily limited, but we may aim at securing facility in the use of the fundamental operations of addition, subtraction, multiplication and division.

Most of the work at first will necessarily be oral and associated with concrete objects, but we must be guided by common sense as to when we shall teach the symbols and the arithmetical terms, 'add,' 'subtract,' etc.

Sir Oliver Lodge says: "Premature forcing of names is worse than artificial withholding of them, but both are bad. It is a help to have a label with which to associate certain observed properties, just as it is convenient to call a certain flower 'Daisy' or a certain star 'Jupiter.' But to supply the label and withhold the object, to lecture about 'daisies' or 'stars' or 'numbers,' before they have been seen by us, is, let us politely say, unwise."

The child enters school with some notions of number. A baby has the number-sense sufficiently developed to discriminate between 2 and 3, or 3 and 4 sweets. Many unconscious number-lessons are received as the child watches the domestic routine.

No systematic number-lessons will be given to children under six years of age, but the Fröbelian gifts and occupation will develop some knowledge of number, and tend to make vague ideas more definite and systematic.

It is unwise and obviously premature to drill young children in number-relations: hence up to the age of six, the instruction in this subject will be informal and incidental.

The use of Apparatus in number-teaching.

Although many ideas of number are gained incidentally by the children in their life out of school, it will be found necessary to allow some use of objects at first. As the child advances these should be relied on less and less. The child should begin to gain his ideas of number, as the race gained them, by contact with real things. Hence he must be allowed to handle, sort and arrange in groups some convenient kind of apparatus.

He will start with a vague whole (group) and by a series of transitions from the whole to the parts, and back again to the whole, the indefinite will become clearly defined in his mind, and the number-concept will be formed.

What apparatus shall we use ?

Experience and knowledge of children seem to suggest the introduction of a variety of materials to the lower group of infants, because, owing to their undeveloped powers of concentration, variety should be the very essence of this work; also because the number-exercise will often be connected with their language-lessons.

It will include gifts I, III, V, VII, and VIII. (Balls, bricks, tablets, sticks, beads, shells, beans, paper-coins, etc.)

As the child's power of attention is gradually developed, the exercises will increase in difficulty (and the appliances decrease in number).

For older children it may be found advantageous to use one kind of apparatus; as Tillich tells us, the presentation of a variety of objects has a tendency to attract the attention of the children to the counters themselves instead of concentrating it on the number.

We do not expect young children to develop the power of rapid calculation. We want ideas of number to form slowly in their minds, but as their knowledge of the components of number gradually becomes systematised and memorised, the children must be trained to do some brisk and rapid work.

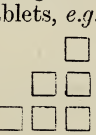
The apparatus used by the teacher should be a matter of individual preference: it must be such as to enable the children to get definite ideas of number, and our determination to make all lessons real, and to keep in touch with the pupils' out-of-school interests, will lead us to the use of the yard-measure, the foot-

rule, scales, weights, paper-coins, to help him to form elementary notions of measurement, weighing, buying and selling.

Any number-work with young children must deal with objects that interest them; their toys, their little shopping expeditions, their make-believe plays will all give us suggestions as to their interests and points of view. Their restless young minds are constantly wandering from one thing to another; if we wish to succeed in holding their attention, we must make the number-lessons as interesting as anything that is likely to catch their attention.

Learning the Order of the numbers.

When the child is learning to count, we must take care that he associates the words, 'one,' 'two,' etc., with appropriate groups of objects. Exercises should be given in making pictures of numbers with tablets, *e.g.*,



In helping the child to form number-notions, we must appeal to him through as many number-notions as possible, including the recognition of numbers by the ear, and the exact imitation of a series of movements made by the hand or arm, *e.g.*, the teacher strikes the gong or sounds the piano a certain number of times; children are asked to tell the number of sounds or movements.

Rhymes and Games that assist in number-teaching.

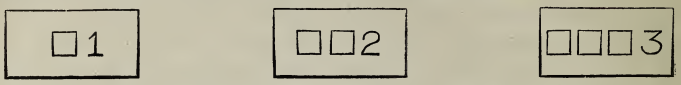
A ring of children may represent a pigeon-house, a farm-yard, a pond or a garden. When the children have decided what the ring is to be, the teacher asks a certain number of children (6) to go into the ring (pond), and be fishes. The children watch very carefully to see the right number of fishes go into the pond; if too many go in, the teacher asks how many must go back, and so on.

Such exercises give practice in estimating the number in group, in adding and subtracting, and in getting and expressing the ideas 'more' or 'less.' Subtraction may be helped by various rhymes, *e.g.*, "ten little nigger boys." This will be found a useful method to fix the subtraction of 1's; practice in other numbers may be formulated by similar jingles.

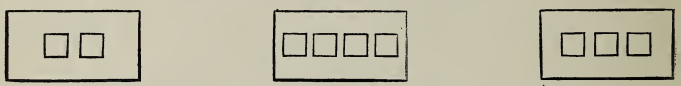
Scoring games. The ability to add rapidly may be increased by playing games in which a score is kept.

The following games have been found helpful :—

1. Get some ordinary building bricks. On each brick is pasted a picture of a number with its symbol thus :



About six of the bricks are placed on a table, one boy rolls a ball and knocks over the 2, 4 and 3. Raman keeps the score by giving the first child the number of counters he has won, *i.e.*, 2, 4, and 3. The groups are shown to the class and added as rapidly as possible by reference to their pictures thus :



After some practice the symbols will be gradually introduced, when the statements may be written on the black-board thus :

2 and 4 and 3 make 9

□□ □□□□ □□□ = 9

2 + 4 + 3 = 9

2. *Skipping.*—Children may count as they skip ; the score for each successful skip may vary from 1 to 3, and thus the children will learn to count by 2's and 3's as well as by 1's.

3. *Throwing balls into a basket.*—The child is given six balls, and he throws them into a basket a little distance away. The number of balls that get into the basket is counted and the number that fall outside the basket ; both addition and subtraction come in here.

4. A circle is drawn on the black-board and the numbers 1 to 20 are written within it. The child is given 3 wool balls and asked to throw them at the numbers in the circle, and those touched are added together, another child keeping the score.

Recognising groups of numbers. The eye may be trained to recognise the number of objects in a group by giving the children practice in visualising numbers of counters. Some training of judgment and development of

power to estimate numbers within certain limits, may result from the following exercises. Interest is perhaps aroused in a building mentioned in a fairy-tale, a drawing of the building is made on the black-board, and the teacher suggests building the gate with bricks. She has prepared a drawing of the gate, and carefully indicated the divisions between the cubes with which she intends it to be built. The drawing is then shown to the children, and put out of sight, and they are asked to say how many bricks are in the tower on the right, how many on the left. The drawing may have to be shown very often before the children are able to visualise accurately. After the number-idea has been sufficiently emphasized, the gate is made by all the children with bricks.

The same method may be employed in building a church, a town-hall, etc. The children work with great interest; their constructive imagination is developed in their efforts to picture to themselves the buildings suggested by the bricks, their knowledge of number is applied to things that interest them; and the numbers are regarded as wholes instead of being built up one by one as in unit-counting.

Sketching of objects for number-work.

Very simple sketches of various familiar objects will form a variety in the number-lessons, and will help the children to visualise groups of numbers. The sketches must be mere symbolic representations of the objects and must not obtrude themselves on the notice of the children, because their minds will be distracted from the idea of number, if they are attracted to the details of the objects.

During the special number-lessons, an attempt will be made to teach (1) the analysis of each number into its various pairs of addenda, (2) elementary ideas of multiplication and division.

Example.—Lessons on the number 8 will include the teaching of—

(1) *Addition.*—

1 and 7 are 8
2 and 6 are 8
3 and 5 are 8
4 and 4 are 8

Children will be taught to reverse 1 and 7, and 7 and 1, etc.

(2) *Subtraction.*—

1 from 8 leaves 7
2 from 8 leaves 6
3 from 8 leaves 5
4 from 8 leaves 4

(3) *Multiplication.*—

Twice 1 are 2
,, 2 ,, 4
,, 3 ,, 6
,, 4 ,, 8

Thrice 1 are 3
,, 2 ,, 6
Four times 1 are 4
,, 2 ,, 8

(4) *Division.*—

The 2's in 8 are 4
,, 3's in 8 are 2 and 2 over
,, 4's in 8 are 2
,, 5's in 8 are 1 and 3 over
,, 6's in 8 are 1 and 2 over
,, 7's in 8 are 1 and 1 over
,, 8's in 8 are 1

These will of course not be committed to memory, but will be learnt by means of repeated and varied exercises, with groups of children, with varied objects, and with different kinds of counters.

The ideas of half, quarter, three-quarter, a third, etc., are given by means of dividing objects into these parts.

Wooden balls cut into 2, 4, 8 equal parts, an open box with 3 equal compartments, and strips of paper all of the same length (and the same colour preferably) are useful appliances.

Increased interest will be taken, and greater knowledge of the properties of numbers acquired, and much power of expression developed, if children are allowed, within certain limits, to experiment freely for themselves, and to state the results of their investigations both orally and in writing. When the children are thoroughly acquainted with the components of numbers up to 10, they must be made familiar with the addition of 10 to the numbers 1—9.

The children should be taught that "teen" means 10. They should have frequent practice in decomposing the "teens" into ten and the odd unit, thus:

11 equals 1 ten and 1 one.
12 equals 1 ten and 2 ones.

Addition of two numbers, whose total is more than ten, but each of which is less than ten, such as 5 plus 6.

1. Convert one of the numbers into 10, as 5 plus 5 = 10.

2. Add the remainder from which the units have been taken to the 10: 5 plus 5 = 10; 10 plus 1 = 11.

Addition of two numbers one of which is larger than 10, such as 11 plus 8. Two methods may be employed. We may say,

10 plus 8 = 18; 18 plus 1 = 19,

or

1 plus 8 = 9; 9 plus 10 = 19.

Subtraction of a number less than 10 from a number greater than 10. Take the smaller number from 10, add the remainder of the larger number to the remaining units, thus:

14—6. 10—6 = 4; 4 plus 4 = 8.

This method of addition and subtraction will prepare the way for the teaching of subtraction by the method of decomposition.

"A combination of methods is not only possible but desirable, as the ultimate aim is to suppress the intermediate step (thus securing the result in one step automatically), which can be more easily effected if the intermediate step is variable." (Memorandum on the Teaching of Arithmetic issued by the Scottish Board of Education).

Number-Lesson—The Number 16

1. *The Number as a whole.*

The children are asked to make up a picture of 16 with their tablets, the red of the tablet is shown for the 10 and the white for the units, and *vice versa*. After the attempt has been made by the children, the teacher also makes the picture of the number 16 on her frame. The children compare and make any necessary corrections.

The picture 16 may be made with any objects that are of interest to the children, *e.g.*, leaves, berries, birds, flowers, etc. The one ten should be separated from the units: the number is thus impressed on the eye in as clear a way as possible. The meaning of "teen" is referred to—sixteen means 10 plus 6. Notation of the number 16.

2. *Halving the Number.*

1. Children divide their tablets in half,
(*a*) in their own way, (*b*) by taking 2 from 10.

Statement 1. Formulated by children.
„ 2. Written on blackboard. 8 is half of 16.

A problem is now given on this number (1) by one of the children, (2) by the teacher.

3. *Exercises on Four Rules.*

(1) *Addition.*—Krishnan had 8 marbles; he won 8 more; how many had he altogether.

Marbles	Marbles
	8
8 plus 8 = 16	8
	—
	16

(2) *Subtraction.*—A boy had 16 pet mice; he gave 8 away; how many had he left?

	Mice
Mice 16—8 = 8	16
	8
	—
	8

(3) *Multiplication.*—A lady had 2 baskets, and in each she had 8 eggs. How many altogether?

Eggs
8
2 times (or baskets)
——
16 eggs.

(4) *Division.*—If I had 16 balls, and I wanted to give them to two boys equally, how many would each get?

Balls
2) 16
——
8 balls each.

It is obvious that there is practically no mental effort; it is reduced to a minimum, that the child may separate the various processes in his mind, state each appropriately in words, and lastly become accustomed to the written form.

1. To teach 4's in 16. *Preparation.*—The ideas gathered during the last lessons are briefly repeated by the children,

e.g., 8 plus 8 = 16; two times 8 are 16; 16—8 = 8; there are two 8's in 16.

Presentation.—1. Number as a whole. The number will be shown with objects.

2. The quarters of 16. Children readily see—

that 4-4-4-4 = 16,

,, 4 is a quarter of 16,

,, 4 times 4 is 16,

and hence there are four 4's in 16.

Illustration with tablets.

Application.—A few problems may be given for children to work mentally after which they may be worked on the blackboard.

4. *Comparison of* 16 *with other numbers.*

The children look at the picture of 16 made with their objects and state in words,

16 is 6 more than 10,

8 is 8 less than 16, etc.

A few problems may be given to help children to realise such comparisons.

Barter.

Before the introduction of coins some ideas as to how people managed without a standard medium of exchange will be interesting and suggestive to the children's inquiring minds.

No doubt some system of barter is already common amongst the children. Reference may be made to the various things used in different places and at different times instead of money; as it was difficult to find exactly the right things to exchange, people agreed to have pieces of metal easily handled and carried about and which would have the same value all over the country. These were stamped in a special way and could be given in exchange for anything that was required.

Coins.

The children should be given much experience in imitation coins, in playing shop, and getting change, etc.

After a little practice the child may write down the various items on paper and add up the amounts.

Ideas must come before words, and words before symbols, that is, we must take care that the children have both a clear

conception of a number-fact, and the power to express this orally, before they are called upon to write it.

Measurement of time.

A knowledge of the 12 months in a year, the number of days and weeks in a month, and the number of hours in a day will be gathered incidentally from the making and keeping of calendars and from the school clock.

Measures of weight.

All the children should be allowed to lift the weights and weigh things for themselves. They should be asked to give a list of things that are weighed by the shopman, and to say why they are weighed. Playing shop may be used in this connection as well.

Measures of length.

A keen interest may be given to measures of length by showing how the units of length, such as the foot and yard have been derived from the human body. The children will easily see that the varying length of people's arms and feet necessitate a standard unit.

The children must be given much experience in the actual measuring of different things in the school. The length of the room or playground may first be measured in varying units, such as the teacher's and children's paces and next with the standard yard-measure. Children should be asked to give the approximate length before they actually measure the things. Shopping games will be found useful here as well.

Syllabus for Classes I to VI for one year in Number-Work

Infants

First Term

I. Sense-training exercises.
II. Children to recognise big, bigger, biggest; long, longer, longest in blocks.
III. To cut out squares, circles and triangles by placing similar figures (Montessori insets) on newspaper and cutting out.
IV. Recognition of numbers one to ten in a variety of materials, chairs, bricks, etc.

V. Recognition of symbols 1 to 10.
VI. Exercises in numbers 1 to 10 (analysis and synthesis).

Second Term

I. Recognise numbers 1—20.
II. Adding similar numbers up to 20, 2 plus 2, 4 plus 4, with concrete objects ; games, etc.
III. Exercises in numbers 1—20 with objects.
IV. Learn to write numbers 1—20.

Third Term

I. Recognise and learn to write numbers 20—50—100.
II. Exercises in numbers with concrete objects.
III. Represent groups of things in written symbols :

15	10	8
5	5	8
	5	2
—	—	—
20	20	18
—	—	—

IV. Easy problems in addition.
V. Counting twos, fives and tens up to one hundred.
VI. Coins.

First Class

First Term

I. Problems in addition.
II. The use of the yard and foot-rule. Game : the clothshop.
III. Proceeding from games lead pupils to see value of multiplication-table. Construct 2×1 to 2×10 ; and 4×1 to 4×10 ; then 3×1 to 3×12.

Second Term

I. Problems in addition.
II. Introduction of subtraction by means of games :
(*a*) Scoring games.
(*b*) Nine pins.
(*c*) Fish-pond.

III. Simple problems in subtraction and multiplication.

Third Term

I. The multiplication-tables constructed and learnt up to 12×12.
II. Division by one digit complementary to multiplication taught.
III. Problems (simple) in addition, subtraction, multiplication and division.
IV. Measurements and comparisons. Two groups of the same objects compared to find out which is greater, which is less, and the difference more or less. Materials with varying units: *e.g.*, cups of liquid, paces across the playground, yards of cloth.

SECOND CLASS

For a Year

I. Revision of multiplication-tables.
II. Easy problems involving multiplication and division, numbers not over 1,000.
III. Problems requiring the use of one or two of the above processes at once.
IV. Use of foot-rule with its divisions (practical).
V. Use of yard-measure (practical).
VI. Easy problems on the above.
VII. Simple problems on Indian money, bazaar games, change, etc.
VIII. Simple problems on Indian measures and weights.

THIRD CLASS

First Term

I. Construct experimentally and learn multiplication-tables up to 16×16.
II. Long division and short division to be compared step by step.

III. Construction of the tables of Indian money. Reduction, addition, subtraction, multiplication and division in these tables with suitable problems.

Second Term

IV. Construction of the table of Indian weights. Easy problems involving Indian money and weights such as purchase of food bought daily in the bazaar.
V. Construction of the table of time. Teach the children how to find the time.
VI. Easy problems involving the number of days in a month ; time ; money, etc.
VII. Length : construction of tables. Simple problems involving finding out the perimeter of a garden, cost of a piece of cloth, etc.

Third Term

I. Problems involving the above tables. Revision.
II. Simple problems on partnership, profit and loss.
III. Bill sums.
IV. Recognition of fractions (experimentally), such as $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, $\frac{3}{4}$; and to be able to find $\frac{1}{2}$ and $\frac{1}{4}$ of any number within 20.

FOURTH CLASS

First Term

I. Revision of the multiplication-table 16×16.
II. Revision of the complete tables of money, time, length and weights.
III. The four compound rules applying the above tables.
IV. Contracted methods of multiplication.
V. Problems bearing on the above tables and adapted to the pupils' home-life.
VI. Bazaar-bills.

N.B.—In working sums, shortened methods should always be aimed at.

Second Term

I. Simple problems in simple proportion by the unitary method.
II. Simple exercises in simple interest.
III. Division of property : easy examples.
IV. (*a*) To measure accurately and read the lengths of straight lines, the perimeter of squares, triangles, rectangles and other simple figures.
(*b*) To construct these figures, when it can be done, with rulers and pencils.

Third Term

I. Drawing to scale rectangular and square forms.
II. An idea of the metric system and a knowledge of decimals.
III. Easy fractions : how fractions are named, how they are written, kinds of fractions, equivalent fractions. Addition and subtraction of fractions with denominator 16 as the highest.

T. K. VENKATARAMAN.

BOOKS FOR REFERENCE

The Groundwork of Arithmetic ..	*Punnet.*
Exercises in the Groundwork of Arithmetic ..	*Do.*
Constructive work (Teachers)	*Lay.*
Constructive work (Pupils)	*Do.*
Primary Arithmetic	*Spear.*

CHAPTER V

GENERAL KNOWLEDGE

Introduction.

The purpose of our elementary school is to prepare the child for his life in the village and to equip him for the duties of a man. Most of the pupils in rural schools do not continue their studies beyond the fifth class. The whole school-life for them consists of four or five years only and in several cases even less than this. They pick up what knowledge they can during these years, and settle themselves for life. Many take to their family occupation of agriculture or some cottage-industry. As such, it is necessary that the limited time at their disposal should be utilised to the best advantage. Our aim should be to train the intellect of the children by imparting such knowledge as will be of practical use in life. To them, knowledge is attractive and worth possessing only if it has a practical bearing on life. The child should be given such courses of study as will enable him to realise and appreciate the ideals of life, and get at the means of attaining them. He should be taught to think on right lines and to act nobly. He should be trained to be a good citizen, fulfilling his duties to himself and his neighbours in a conscientious way. He should take some interest in the grand world of Nature spread beautifully around us, observe the sun, the moon and the stars as they move about in the blue dome above our heads, and study the various plants and animals of the place with a view to understand what purpose they serve in the Economy of Life. He should know something of the elements of government, he must have at least a rough idea as to what taxes are, why they are levied and how they are collected. He must not confine his intellectual life to the mere village or *taluk* in which he lives, but take a broader interest in the welfare of his country in general and of his province in particular.

It is this sort of general training and widening of the outlook that we propose to give under the heading "General Knowledge." The possession of this knowledge by the bulk of the people determines to a large extent the progress of a nation;

and India has been far behind other countries in general advancement, because the 'average' man here knows far less than the 'average' man in other countries. The elementary school children of to-day are to form the bulk of the people to-morrow. And so, special attention has to be devoted to the teaching of this subject in rural elementary schools.

From a perusal of the scheme of studies recommended for elementary schools in the various provinces, we find that the utilitarian aspect of the course is kept prominently in view. Besides the three R's, drawing and physical exercises, instruction is given in nature-study, geography, history, civics, hygiene, etc.

The Syllabus.

In a vast country like India with its varying physical, social and economic conditions, it is not possible for the same curriculum to be adopted everywhere. Every province, and perhaps every district, will have to formulate its own syllabus of studies so as to suit local conditions. All that we can do here is just to give a bare outline of topics that may be usefully dealt with in an elementary school, with sufficient elasticity to admit of any modification that may be thought necessary.

i. Rules of Conduct.

In any such scheme, the foremost place is naturally to be given to a knowledge of the simple rules of conduct. "I regard moral uprightness," says an educationist, "as the cardinal point in the whole personal worth of a man." Necessarily therefore, ethical training comes first under "general knowledge." The child should know his duty and the way of getting it done. In shaping the child's conduct and character, the teacher himself should, as far as possible, be the model. Examples of the dutiful student, son or brother, may be placed before the child, culled from history or legend, tradition or mythology. It is not necessary that all moral principles should be discussed in the class. It is enough if we take the most important and try to impress them clearly on the child's mind. But on this account we need not convert our lessons into regular sermons. If only the examples are placed before him in the proper setting, the child will draw for himself the necessary morals. We need not directly "teach" him the moral of every lesson. Sri Rama's ungrudging obedience to his father, Harischandra's martyrdom

for the sake of truth, Bhishma's vow of celibacy and Sri Krishna's friendship for Kuchela—these and other instances from our Sastras and Puranas may be narrated so vividly and picturesquely to the child as to rouse his latent faculties and fire his spirit in emulation of these high and lofty examples.

ii. Elements of civics.

One of the most important aims of modern education is to give an adequate training in citizenship. Beginning with family life, we may proceed to the larger life of the village or the community to which the child belongs, and discuss how the same principles are to be found here in a modified form. Similarly, we may pass on to the next stage and make him understand the elements of district-administration, and lastly give a very rough outline of the government of the country as a whole. The lives of the great men of the world may well be taken as examples wherefrom to give illustrations of public service and public duty.

The training in citizenship would necessarily involve a knowledge of the work of some officials. What is the duty of the village *Munsif*? And the village *Karnam*? These questions may be answered with reference to the every day life of the villagers themselves. And the work of the higher officials like the *Tahsildar* and the Collector, the Magistrate and the Police Inspector will have to be explained to the children, in terms of the village officials. It must further be clearly impressed on the mind of the child that the peaceful administration of a country depends largely on the co-operation of the people and that every one—be he an official or not—has his own bit of work to perform.

The best way of beginning the course would be by a reference to the working of the Postal and Telegraph Department. Thanks to the modern means of communication, not even a hamlet in the remote interior is now without its post-office. The village folk have therefore learnt what it is to receive letters and to answer in reply. A letter actually received (or a money-order) may be taken as the starting point, and easy questions may be asked as to how it came from such a distance and how it was possible to accomplish so much for such a small sum; thus the child would be made to think, and his mind prepared to take in the main principles of this department. Truly has it been said that the post-office and the railway have been the two most

civilizing factors of the modern world. The older boys may be taken on an excursion to the nearest telegraph-office to understand how it is worked; they may be taught to write and post letters, and to fill in money-order and telegraph-forms. Mention may also be made of wireless telegraphy.

iii. Simple Rules of health.

No one will question the importance of the subject and the benefits conferred on the child by a knowledge of the simple rules of health. Cleanliness of person, cleanliness of surroundings, cleanliness in thought, word and deed—these must be emphasised again and again. The necessity for taking wholesome food, drinking good water, breathing pure air, and wearing clean clothes must be made clear to children and this can best be done by devoting a few minutes every day to this point before the class begins. The absence of a boy or two from the class owing to ill-health will set the others thinking seriously as to the consequences of the violation of these rules of health. The difference between "wholesome" and "rich" food, between "neat" and "gaudy" dress will have to be made clear to the children. A common difficulty in the case of most of the children is that they are poor and so they think they cannot be clean: but they must be made to understand that poverty does not necessarily mean dirt or filth.

The origin, nature and prevention of the more common diseases may also be taught to them with advantage, as well as the functions of the various parts of our body. Here as elsewhere a great deal can be accomplished by insisting on cleanliness in the class-room rather than by mere talk about cleanliness.

iv. The sun, moon and stars.

The child has always looked at the movements of the sun, the moon and the stars in the sky. But his observations have not been made in a systematic manner so as to enable him to draw any conclusions therefrom. A study of these movements will increase his powers of observation and give him sufficient training in thinking and reasoning. So let him learn to appreciate the glories of sunrise and sunset, the beauty of the moonlight night and the majestic calm of the stars. Let him observe the difference from day to day in the time and direction of sunrise and of moonrise. Let him understand that the moon's movement is completed in a month and the sun's in a year. From

these observations, let him be led on to the calculation of the day and the month of the year. Let him learn to read his *Panchangam* or his almanac published in his mother-tongue. If possible let him be told about the rotation and revolution of the earth. From this, let him be led on to a study of the eclipses and the seasons. All the while, he must be made to discover for himself the truth that the climate of a place is largely responsible in determining the life of the locality, and that man is always using his intelligence to adjust himself to his environment. The teaching will thus be mainly practical and there is no need for the introduction of any theory at all.

v. Plants and animals of the locality: methods of agriculture.

The child is in most cases the son of an agriculturist and probably will himself take to agriculture in later life. So he should know something of the cultivation of the local produce. The teacher should merely create in the child an interest in the growth of the plants of the locality in the hope that this curiosity will urge him to learn more and more. The study has to be made of the actual living plants and animals. Mere description or readings from books will not at all serve the purpose. He should be taught to give the names of the common plants and trees in the neighbourhood and to recognise them by their leaves, flowers or seeds. He should know what crops are usually grown in the village and when they are sown and harvested. The common agricultural operations such as tilling, manuring and irrigation may also be observed with benefit. He should know in general the familiar animals, birds and insects of the locality, their habits, their modes of life, etc. The knowledge thus gained must be delightful, interesting and stimulating, rather than complete or scientific. The lessons can best be done in the open, where the plants and animals can be seen and studied with advantage. Neither is a school-garden a necessity; the good teacher will himself take the class on small excursions outside the school and be always near the children, directing their minds to careful observation and fruitful means of enquiry.

vi. Local industries.

The common industries of an Indian village are brick and pot-making, handloom-weaving, oil-pressing and the trades of the carpenter, the blacksmith and the goldsmith. The child will observe these industries and note the articles, tools and implements used

by the different workmen. He will note the difference between baked and unbaked clay, planed and unplaned wood, and thus study the properties of common things in daily use. Opportunities may easily be afforded of learning how things get soft and pliable by heat, and the processes through which raw materials pass, before becoming useful articles. He will thus be introduced to the world of industries and when the time comes, he will easily take his proper place in it.

vii. Rent and Revenue system.

The child who is to become a ryot of the village has to know about the manner in which land-revenue, familiarly known as *Kist*, is calculated and collected. The details of the process may safely be omitted, all that the child wants is just to know the principles on which the land-tax is based and the agency by which it is collected. In the case of the older boys (and wherever the children are particularly interested) some knowledge of the ownership of the land, the *pattah*, the *darkhast*, and the method of buying and selling lands may also be imparted. But whatever we say or do, we should be careful not to stifle the curiosity of the child by giving too much information.

viii. Ability to read and understand newspapers.

And last, but not least, comes the ability to read and understand newspapers in the vernacular. The child when he leaves the school goes with a nucleus of general knowledge which it is his business to improve in every particular. One of the best ways of doing it is by means of newspapers. They are so cheap, so easily got and form such light reading that we can get a great deal of pleasure and information from them. We should not therefore let slip this opportunity to get the children interested in the daily newspapers. Occasional readings from the newspapers may therefore be given to serve this purpose. Once the child's interest is roused, the desire to be abreast of the times and to know something of what passes beyond the limits of his village will lead him on to continue his newspaper reading. It is this that we want mainly to achieve.

Conclusion.

Even from this rough plan it will be easily gathered that 'general knowledge' can be acquired only by the active observation of the children themselves, the teacher being merely a guide and a friend to direct their thoughts into the proper channels of reasoning

And wherever any information has to be given at all, this will have to be done in the most vivid and realistic manner possible. Pictures, illustrations and dramatization may be resorted to by way of impressing the facts. An elaborate equipment of apparatus or of appliances is not necessary. All that is required is a really enthusiastic teacher interested in his work of uplifting the children entrusted to his care. He should be tactful and resourceful, of a social and agreeable nature and truly sympathetic and loving towards the children. He should himself be a man with sound "General Knowledge" so that, more by example than by precept, the children may be allowed to extend their command of "Useful Knowledge."

M. R. SUBRAHMANYAM

CHAPTER VI

GEOGRAPHY AND HISTORY

Geography

The knowledge of the average elementary school pupil is strictly limited to his immediate surroundings–the house in which he lives, the street or at best his village. He knows only those things which he has actually handled and only those persons to whom he has actually talked. He is easily puzzled by anything which he has not met before. A new face or even a new word upsets him. Hence it is very important that the teacher should proceed step by step from what is known to what is unknown. He should draw beforehand the plan of work for the whole year besides writing down his daily notes of lessons and his small list of simple questions. He must be very careful to see that every step he takes follows straight from the actual experience or observation of the children.

As local conditions vary greatly from province to province and even from one district to another, each teacher will have to make up for himself the lessons he proposes to give, and to adapt them to the previous knowledge of his pupils.

Geography is not a simple subject like Reading, Writing or Arithmetic. It deals with the influence of physical conditions on the life of men and the lower animals, as well as with those gradual changes in the face of Nature which take place without any reference to Man. It is therefore necessary that the pupils should have some previous knowledge of Nature-study; clay-modelling, pencil-drawing and brush-work will be of great use to them for realising the shapes and sizes of the objects they have not seen. For instance, the action of rivers, the relation between mountains and valleys, the course of roads and railways—these and several other phenomena may best be brought to their minds by models in clay or by pictures in colour. Of course map-drawing comes a little later but is by no means of lesser importance.

It will thus be seen that Nature-study is the basis of all geographical knowledge. The life of plants in the school-garden and beyond, that of animals of various kinds, elementary ideas of the different seasons, the apparent movements of the sun, the moon and even the stars—the children must be familiar with all these. Stories of exploration and discovery, pictures of life in far-off lands, descriptions of such natural phenomena as deserts, icebergs, glaciers, etc. (which are usually found in reading-books) are other means of help to the geography-teacher. Similarly the measurement of the length and breadth of the school-room, the playground and the neighbouring field or garden, and the drawing of simple plans based on these measurements will be the first steps in map-drawing.

When thus the ground has been cleared the actual geography-work may proceed along various lines :—

1. Map-work.

Map-work naturally develops from rough plans of the school house and the playground to a rough scale-map of the village in which the school is situated, and later would also cover a few square miles of the adjoining area. The pupils should be encouraged to go on short excursions—within a mile or two—to some place of interest and to observe whatever strikes them as new or peculiar. All this is easy enough; but to give them an idea of the sea or a mountain where neither is at hand, the teacher will have to rely on his own powers of description. But once this difficulty is overcome, the pupils will know what a map means, and try to understand it intelligently.

From this it will be easy for them to study the globe or the map of the world in hemispheres. They may then be taught the names of the continents and oceans ; the relative positions of India and England may be shown, and the names of those countries of which they are likely to have heard, may be introduced, such as Japan, France or the United States of America.

2. Industry and Commerce.

Side by side with the above would proceed a study of Industry and Commerce. Beginning with cottage-industries (such as handloom-weaving), the pupils may be led on to observe those which are to be found near the school, such as oil-pressing, pottery, etc.—the necessary accompaniments of every Indian village. This may set them thinking about the sources of supply of all

local wants—the articles of food and clothing, the tools, etc., required for local industries. Finally a glimpse may be given them of the trade of India, but the main object in doing so must be to rouse the children's curiosity and not to overwhelm them with facts and figures.

The study of trade would naturally involve a study of the various means of communication—such as roads, canals and railways. An interesting lesson may be given on the various modes of travel—ancient and modern—on land and sea; and the children will be delighted beyond measure when they first make their acquaintance with posts and telegraphs, the bicycle and the motor-car, the steamboat and the steamship as well as the aeroplane and the submarine. They need not be troubled with these high-sounding names; it is enough if they are made to know something of these wonders of modern civilisation.

3. Physical Features.

With an elementary idea of hills and dales, of table-lands and deserts, children may be easily made to understand that life in these different regions must differ considerably. Mountain-people are generally hardy and strong, with great powers of endurance: while those in the plains are not so bold and daring. People in fertile valleys are more civilised than those dwelling in forests or deserts. Pasture-lands afford good grazing grounds and thus breed fine cattle; these and other points of interest may be brought home to the pupils' minds in an intelligent manner.

4. Climate.

As physical features generally determine the climate of a place, the transition from the one to the other is easy for the teacher. The agriculture of the country depends mainly on its rainfall; and the various stages—such as ploughing the land, and enriching the soil with manure, sowing the seeds, harvesting, etc., depend on the conditions of the weather. As the pupils will be acquainted with these things, the teacher may easily connect the two and thus give a vivid idea of climate to the boys. The period of annual floods in the rivers, the time when the days are short and the nights are long, the season of fierce heat and of strong winds—all these take place in fixed parts of the year; and may well be taken as the basis of the children's knowledge in this direction. From this as starting point the ambitious teacher may go so

far as to teach them the cause of monsoons, the rotation of the moon round the earth and of the earth in turn round the sun, the solar and lunar eclipses and so forth.

5. Elements of Civics.

This study of Civics necessarily merges into History. The study of a Union or Municipality leads on to its function of levying taxes from the people and spending them for the public benefit. Common wells are dug for the use of the public, streets are lighted, schools are established, hospitals are built, and wise measures are taken to prevent disease and preserve the health of the people. From this village-government the elements of district-administration may be deduced, the duties of the Collector, the Judge, and other officers being explained by means of homely illustrations. And finally a rough idea may be given of the present machinery of Government; but when the children ask how it came to be what it is,—there we have the first beginnings of historical knowledge.

History

The Study of History.

In this scheme the story of the development of the British Empire in India, which may be made as romantic as a fairy-tale, will take the first place. The part played in it by the various heroes will naturally be emphasized, although no fetish need be made of chronology.

Next to this will succeed a knowledge of the life-history of the great men of the past—leading to the virtue of intelligent patriotism. There is no village in India which has not been famous either in history or legend, and so starting from this the children may be led to think of the heroic life of these great men who form the chief glories of the nation.

Besides helping us to understand the trend of current events and giving us inspiring examples of noble men and women, the study of Indian history is valuable as it records the gradual development of the only unbroken culture of the world for the past six thousand years at least. Violent changes have no doubt taken place from time to time but, in the main, the life of the Indian villager of to-day is not far different from his ancestor of 4000 B.C. Except in a few of the larger towns and cities, the life of the average Indian is practically the same

as that portrayed in the Vedas and the Puranas written thousands of years ago. A sketch of the history of this life, stable in essentials and differing only in details, is perhaps the best means of developing the time-sense, a feature which is conspicuous by its absence in most Indians.

This rough scheme, indicated here in the barest outline, will have to be drawn up in the form of a syllabus so as to cover the two or three years of elementary school-work. And in teaching it all the resources of the teacher will have to be employed. He must no doubt be equipped with a plentiful collection of models, maps and plans, pictures and paintings, books of travel and adventure; but with all this, he will have to use his material in the most careful manner. Sometimes he will have to give his pupils facts, sometimes he will have to show them pictures and thus excite their curiosity, sometimes he will have to question them and set them on the path of inquiry, sometimes he will have to help them in forming models and plans. But all these should come in their appropriate places and above all nothing should be overdone. The teacher will always have to be a source of enthusiasm and activity to the children and he should try all the means in his power to get them interested in the subject. Once this is achieved, everything else follows as a matter of course.

P. T. SRINIVASA AIYANGAR.

Books for Reference

Geography

Flags of all Nations	.. *Wilcox.*
Geography of the World	.. *Veeraraghava Chari.*
Do. of Chingleput	.. *Do.*
Little People in Far-off Lands	.. *Tapsell.*
All the World in Picture and Story	.. *Relay.*
Nations of the World	.. *MacKinder.*
Distant Lands	.. *Do.*
Longman's School Geography	.. *Chisholm.*
The Story of the World	.. *O'Neill.*

History

Book of Golden Deeds	.. *C. M. Yonge.*
Heroes of Indian History	.. *Allen.*
Cambridge Historical Readers,	Introductory.
Do. do.	Primary.
Do. do.	Junior.
Do. do.	Intermediate.
Do. do.	Senior.
Boys' Book of Inventions	.. *Baker.*
Joan of Arc	.. *F. T. Palgrave.*
Akbar	.. *R. C. Dutt.*
Heroes of European History	.. *Creighton.*
Voyages and Discoveries	.. *Cook.*
Heroes of England	.. *Edgar.*
The Wonder Book of Soldiers	.. *Golding.*
The Story of Stanley	.. *Do.*
Under Wellington's Command	.. *Henty.*
With Clive in India	.. *Do.*
The Indian Heroes	.. *Kincaid.*
Deccan Nursery Tales	.. *Do.*
Last Expedition	.. *Scott.*
Story of Kitchener	.. *Wheeler.*
The Great War	.. *Newbolt.*
Life of Nelson	.. *Southey.*
Oxford History Readers	.. *Oxford University Press.*

CHAPTER VII

DRAWING

DRAWING is the subject which has been most neglected in elementary schools in India owing to the fact that it cannot be 'mugged up' or memorised and that it is not a subject for Matriculation. These notes are therefore made as elementary as possible and the work suggested is pencil, pastel and chalk work only, water colours being left out as being much too advanced for elementary schools.

Aims of Drawing and the reason for its inclusion in the school curriculum.

Drawing should be taught firstly for its educational value, and secondly for its utility. Briefly, it is the means of training the eye to observe and understand various forms, and of training the hand to reproduce these forms. When taught correctly it develops expression of thought and idea, it stimulates imagination and encourages careful observation of nature, form and colour; it awakens interest in the world around and develops good taste in the home and in life generally. Its practical value is seen in every laboratory and workshop, and for these two reasons, *viz.*, its educational and practical value, Drawing should always find a place in the School Curriculum.

Scheme of work.

The notes given indicate the standard of work that may be obtained in the various classes or standards. A scheme may be built up by using these notes as a guide. Remember that every object should be of interest to the class. The scheme should on no account include the method of copying various forms of abstract ornament from printed cards. The following is a general idea of a course of drawing:—

Standard I.—Mass-drawing, imaginative, object and nature drawing with coloured chalks.

Standard II.—Mass-drawing shaded; the objects are drawn in mass and a lighter chalk used to suggest the form: also imaginative, memory and nature drawing.

Standards III to VIII.—Memory, nature and object drawing in pencil and pastel shaded to represent form and colour. Scale-drawing may be introduced in Standard IV or V. The object may occasionally be tinted to increase interest.

Only pastel and chalk should be used up to the third standard; pencil-drawing should then be introduced. Every scheme should include mechanical drawing for boys, that is, drawing done with the aid of ruler, set square, and compasses, such as plans and elevation of common objects. As regards 'imaginative drawing,' in the lower classes no scheme need be followed, as it is a means towards an end and of little practical value beyond the second class. A course of drawings should be prepared for the whole term before the term begins, as placing the objects haphazardly before the pupils without any thought of sequence is useless. The course need not be rigidly adhered to, but the sequence must be maintained and the teacher must work through the course before attempting to teach it, so as to be aware of the difficulties that the class will meet.

Drawing in the lower classes.

The drawing done by children in the lower classes must not be judged by the finished product; this may often be very crude, yet the teacher can see the child's conception of the lesson, and it affords an opportunity of correcting errors that questioning may not reveal. Young children should be given every opportunity of drawing on large surfaces, as black-boards, straw-boards, etc. The drawing of objects in mass is peculiarly suitable for infant classes: the child sees objects in mass and imagines the forms of objects in mass long before it is able to define and understand details

The dot is the usual starting point in mass-drawing; this is enlarged to represent a bead, ball, fruit or coin, then easy forms as eggs, shells, reels, balloons, tops, leaves, pots, fruits, etc. Mass-drawing is the beginning of object or model drawing as it is an easy step to mass-drawing shaded so as to give an idea of the form of the object. This kind of drawing should be done with chalk or pastels.

Brushwork or blobs.

Much has been written of brushwork for infants and many schemes have been put forward composed of blobs of colours which developed later on to some form of design. This work is often very mechanical and

so is of little value. (Pastel-drawing or chalk-drawing is more suitable in the infant school as being more direct, and the medium easier to handle.)

Pastel-drawing. Pastel-drawing should follow shaded mass-drawing and may continue throughout the whole scheme. Pastels are crayons of a fine quality but any kind of crayons will answer the purpose if they are not greasy. Greasy crayons are of little use for this work as they will not blend in colour. Care must be taken that the outline is drawn with the pastel and not with the pencil as this leaves a glazed surface which the pastel does not cover. Country-made brown paper of any kind is suitable for this kind of drawing which is not as difficult as pencil-drawing, as it has not such a clear, definite outline ; the pastel-point being broader leaves a rough finish.

Pencil-drawing. After a certain standard of efficiency has been obtained in pastel-drawing the pupils should be taught pencil-drawing from objects. The models or objects should always be simple and interesting, and placed in such a position that they can easily be seen by the class and so that the light is reflected on the face or edge, thereby emphasizing the light and shade. Outline-drawings in the flat are only permissible when drawing flat objects : round objects must always be represented as round ; the drawing should always show the form and should represent as fully as possible the object with all its light and shade—*e.g.*, a circle does not represent a ball ; it represents a circular piece of cardboard or a piece of bent wire ; to represent a ball it must be shaded so as to show the form of a ball. The shading should be done by means of lines only and with a B pencil ; care must be taken to make the shading lines follow the contour of the object or model ; avoid the use of charcoal and stump as this method is unsuitable for general school-work. In upper classes all objects must be represented as standing on a ground or base and many objects require also a background to emphasize the form of the model. By a " base " is meant only a suggestion of a ground by a few lines, a drawing-board or a table-top need not be drawn : this also applies to a background ; a faint suggestion only is needed. The drawing should always be of a reasonable size so as to allow a sufficient margin on the paper ; small drawings should not be encouraged.

Drawing on squared paper. This is of little value; being too mechanical it allows no originality and is therefore not to be recommended as a form of drawing.

Design. This is a very technical and highly skilled form of drawing and is of little value unless taught by an expert: therefore the teacher is recommended to leave design out of the drawing-syllabus.

Memory-drawing. Memory-drawing improves imagination and cultivates confidence and self-reliance and should occasionally be given to the class as a test.

Mechanical or Practical Drawing. This form of drawing is of great value for boys on account of its mechanical accuracy and practical use. It should be started in standard IV or V by geometrical drawing of squares, triangles, etc., leading on to plans, elevations and sections.

Method in teaching Drawing. Method is as essential in teaching Drawing as in all other school subjects. The Drawing-syllabus must be planned with method, forethought and a definite movement towards a given standard of perfection. The success of a Drawing-scheme depends on the selection of suitable matter for drawing and the proper handling of the matter by the teacher. The period devoted to this lesson must not be looked upon as an interval in the school-routine when the class may be set to work and the teacher make notes of lessons on other subjects: the duty of the teacher is to prevent as well as to correct errors. Drawings must be suitable to the age, understanding and intelligence of the pupils and should be arranged in natural sequence, and new methods should be explained by reference to the knowledge already possessed. A point to remember is that often the same object may be used for various classes, the medium only being altered, as the infants may draw a *chatti* in mass, standard II may draw it in mass-shading with black and white chalk, standard IV may draw it in colour with pastels putting in details, standard V in light and shade with the pencil. Another point to remember is that while it is impossible to expect the same quantity of work from each pupil in the class, the same quality may be looked for. The work should not be hurried over, all details must be observed and drawn by the higher classes, and the method of judging results must be 'quality first.'

The following methods may be employed in teaching Drawing :—

In mass-drawing, as previously stated, no outline should be drawn, but the pupils should start from a point-scribble with a piece of chalk till a form is made as near as possible the shape of the object : later on a lighter coloured chalk may be used to give an idea of form to round objects, and objects may be drawn in colour.

In pastel-drawing sketch lightly the shape of the object with a pastel of the lightest colour ; then commence working in the colours from the darkest part of the object, care being taken that the high lights are left to be put in last of all. Use the pastel sparingly ; otherwise the surface of the paper will become glazed. After the object is finished, the base may be lightly sketched in with a complementary colour and a suggestion of a background may be shown. In outline-drawing care must be taken to draw the outline very faintly, just clearly enough to render it visible : the shading should then be put in, the paper being left white where the light is reflected and gradually toned off to dark shadows. The shading should not be rubbed but should be done by means of pencil-lines only. Use rubber very sparingly as the shading will show where it has been used.

The use of the black-board.

The black-board should be used for demonstrating various points that may arise in teaching Drawing. Mistakes should be illustrated on a large scale, thereby showing clearly the particular point in question. The teacher must remember that the drawings as drawn on the board are only examples as seen by one particular pupil and not by the class, as each pupil has a different view of the object. In pastel-drawing a sheet of white paper may be pinned on the black-board for demonstrations in colour-blending, etc.

Notes of lessons.

Notes of lessons must always be prepared for colour-drawing, so that the teacher can anticipate the difficulties of the pupils, thus saving time and obtaining better results.

A specimen lesson is given below :—

Time.—One hour and a half.

Class.—Seventh Standard.

Object.—A group of Indian fruits on a white plate placed about 18 inches from the ground with a suitable background and in such a position as to be clearly visible to all the class.

Light.—The light should fall from one direction only so as to prevent the confusion of shadows and high lights falling on the model.

Aim.—To produce correctly the fruit and plate in their natural form and colour, including light and shade, by means of pastel-drawing.

Previous Knowledge.—Pupils are already acquainted with pastel-drawing, including light and shade.

Stage I.—Sketch the outline with a soft pastel paying great attention to the elliptical form of the plate, the roundness and the hidden portion of the fruit.

Stage II.—Fill in the outlines blending the pastels so as to get the natural colour of the fruits.

Stage III.—Finish off the drawing, emphasize the shadows where necessary and give suggestion of a background and base.

The form below is a simple method of framing a course of drawing :—

Class or Standard	Subject.	Nature-study.	Memory Drawing.	Object Drawing.	Medium employed.		
					Chalk (mass).	Pastel.	Pencil shaded.
Standard VI.	A shoe ...	...	...	...	...	...	...
,,	Spray of mango leaves.	...	...	...	...	...	...
,,	Lock and key.	...	...	...	...	...	...
,,	Chinese lantern.	...	...	...	...	...	...
Boys ..	Plan of desk ...	...	...	...	...	...	Pencil or Ink
Girls ...	Onion ...	...	...	...	...	...	...

The following may be taken in the—

First Standard

Imaginative.—Nursery rhymes; sky and field; boat on the sea; a tree, etc.

Memory.—Optional; a bird, butterfly or a flower.

Nature-drawing.—In mass; simple leaves, fruits, vegetables, berries, butterflies, etc.

Object-drawing in mass.—Of two dimensions only. Ordinary flat drawings in mass, of objects on brown paper with coloured chalks, as a ball, egg, top, string of beads, square, oblong, frame, post-card, envelope, fan, bat, slate, funnel, bottle, saucer, basin, simple vegetables and fruits. Flat drawings may be tinted if desired.

Second Standard

Imaginative.—Easy pictures as a gate, boat with a sail, fairy tales and rhymes.

Memory.—Optional, but may be taken from objects below.

Nature and object-drawing.—Ordinary mass-drawings with a suggestion of form and light and shade, to be drawn with chalk on brown paper: any toys, spoon, knife, cotton-reel, envelope with stamps, cup, saucepan, pail, kite, *chatti*, pot, cricket bat, hat, magnet, walking stick, funnel, bottle, basin, and any vegetables or fruits will serve as objects.

In all future work elementary ideas of light and shade must be insisted upon. Flat drawings may be tinted if desired.

Third Standard

Memory.—A house, a road, a camp, a cart or any of the objects below.

Nature-drawing.—Leaves, fruits, pods, twigs.

Object-drawing.—Light and shade in coloured crayons on brown paper and pencil-shading on white paper. Pots, *mamooti*, fan, bottles, playing-cards, balls, Indian clubs, plant pot, jam jar, bottle, feather, hockey stick, vegetables, etc.

Pencil-drawing should be started in this class in object-drawing. Flat-drawing, such as envelopes, may be tinted if desired.

Fourth Standard

Memory.—Optional.

Nature-drawing.—Twigs showing buds, leaves, seeds, butterflies, moths, etc.

Object-drawing.—Light and shade in pastel or chalk on brown paper, and pencil-shading on white paper: such objects as shells, brass and copper pots, books, chalk-box, ink-well, brush, candle-stick, glass with liquid, axe, bottle, gum-bottle, match-box, hammer and jug.

Mechanical-drawing.—The use of ruler, set-square and compasses.

Fifth Standard

Nature-drawing.—Fruit and flowers, insects, etc.

Object-drawing.—Lock and key, brass lamps, bell, vegetables, cup and saucer, Muhammadan cap, boxes, easy group of objects as two books, or book and brick, bottle and brush, basin and spoon.

Memory-drawing.—Any of the above.

Mechanical-drawing.—Straight lines, squares, triangles, circles, etc.

Sixth Standard

Nature-drawing.—Sprays of leaves and flowers, etc.

Object-drawing.—In colour and pencil-shading: tea-pot, boots, shoes, easy group of objects, any manufactured articles, etc.

Memory-drawing.—Candle-stick, tools, any of the above.

At this stage light and shade ought to be fairly well rendered.

The elementary rules of perspective may now be demonstrated.

Mechanical-drawing.—Elevation of a box, book, table, etc.

Seventh Standard

Nature-drawing.—Flowers singly and in group. Studies in connection with the nature-study lesson.

Object-drawing.—In coloured pastel and pencil-shading: handbag, boot or shoe, and easy groups of two simple objects paying great attention to light and shade.

Memory-drawing.—May be given at intervals on any of the above, as a test of observation such as a book, brick, knife, spoon, etc.

Mechanical-drawing.—Hexagons, pentagons, etc., elevation of picture frames, etc., plan of class-room.

Eighth Standard

Nature-drawing.—Careful details of flowers and plants, flowers in vases, etc.

Object-drawing.—Light and shade in pencil and pastel: sandals, Chinese lantern, group of fruits, ink-bottle and pen, hammer and nails.

Memory-drawing.—Common objects as hat, baskets, etc.

Mechanical drawing.—Easy elevation of tables, doors, easel, etc., plan and elevation of a box and other simple objects.

School decoration.

The children should, as far as possible, be under refining and elevating artistic influences; their school surroundings should be a power in this direction by having on the walls, good pictures, prints and photographs.

Three or four pictures are sufficient for one class-room and these should occasionally be changed so as to be of continual interest to the class. Common mistakes in school-decoration are that drawings are often allowed to hang on the wall till they are dirty; morbid pictures of anatomy are allowed a permanent place on the wall instead of being treated as notes of lessons and removed after the lesson; far too many pictures, prints, cuttings, and photographs are allowed to adorn the walls in frames of teakwood, rosewood, gilt or composition—the whole effect giving to the class-room the appearance of a second-hand shop.

Photographs of Royalty and eminent people and such pictures as The Gleaners, The Canterbury Pilgrims, The Pool of London, The Hay Wain, Ancient Italy, A Pastoral scene, Dignity and Impudence, The Laughing Cavalier, and good historical prints are to be recommended for their artistic value.

Furniture.

Drawing desks and chairs are best for all drawing work if they can be obtained; the top should have a slope of about 15 degrees; the best position for a class is in the form of an arc with the light coming from behind.

C. R. PORRETT.

[*Mr. Porrett wishes it to be known that he accepted no remuneration from the publishers for the above article. It is my pleasant duty, at the same time, to acknowledge the whole-hearted way in which all the contributors, in the midst of pressing and numerous duties, accepted the invitation to write, and thus help the elementary schoolmaster in his work among the children of India.*—Editor.]

CHAPTER VIII

THE TEACHING OF ENGLISH AS A FOREIGN LANGUAGE

THERE is no doubt that at present there is a growing demand for learning English in India. It manifests itself in all strata of society from the great cities and towns to the remote villages and hamlets of the interior. This is partly due to the fact that English is the language of the governing classes, the common language of the courts and councils of the land, and the one medium of the foreign trade of the country. A working knowledge of English has thus become a practical necessity in the great cities where people of different races meet and can exchange their thoughts only through this common language. On this account it has become wonderfully popular during the last fifty years and it soon bids fair to become the ' lingua franca ' of India. It has brought together the diverse castes and creeds in a common political consciousness ; and the present national awakening is in no small measure due to its influence as a great unifying factor.

The English-speaking race are the masters of the greatest empire that the world has ever seen ; this is another point to its credit.

But besides this purely utilitarian aim, valuable ideas can be gained from a study of the history and literature of England and a new world of thought and activity, of political and social evolution is revealed to us by this means. Further, scientific culture of every kind is to be had—at present, at any rate—only through this language. It has thus become the medium of instruction in all colleges and high schools ; and so the chief object of teaching English in elementary schools is just to lay the foundations on which the children's further study in the secondary schools and colleges is to proceed.

Usually Indian children begin to attend school when they are five or six years of age. And the elementary school course lasts as a rule for four or five years according as the infant class is included in it or not. So that we may take it that the average boy or girl leaving the elementary school will be about ten or eleven years old.

It is a question now which has been keenly debated and which has lent itself to considerable differences of opinion as to when exactly English is to begin in this course. The ardent admirers of English would like to begin it even in the Baby Class, thus giving it preference over the child's own mother-tongue. Others however would postpone its study till the eleventh or the twelfth year. But the best solution seems to be to begin English in the eighth or ninth year, *i.e.*, after the children have made their first acquaintance with their mother-tongue and while they are yet in the most impressionable period of youth. For experience has clearly shown that the period between the ages of eight and ten is the one most fitted for learning the elements of a foreign language.

Let us therefore assume that the children begin their English in their eighth or ninth year, thus providing for a two years' course in the elementary school. And with this assumption let us try to find out what we can expect of an average boy or girl after the completion of this course, still bearing in mind the fact that English is a foreign language here.

Our ideal should be to enable the children to carry on an ordinary conversation in English on familiar topics within their experience. They should easily be able to answer such questions as these :— 'What is your name?' 'Where is your house?' 'Why did you not come to school yesterday ?' They should be able to return the ordinary greetings 'Good Morning,' and 'Good Evening.' They should be in a position to say 'Thank you,' for any favour shown to them. They should have learnt to understand and carry out the messages contained in easy sentences, such as, 'Go and shut the door,' 'Stand up,' 'Sit down,' 'Open the window.' They should know the names of the various objects with which they come in daily contact, such as pencil, slate, door, pen, window, class-room and playground ; the different parts of the body ; the birds and animals near them ; the trees and plants in their school-garden and the primary relationships such as father, mother, brother and sister. And we may well expect their ordinary vocabulary to consist of from one to two hundred words.

If all this is to be achieved within the time at our disposal, then the teaching must be systematic and regular and must follow a well thought out plan. Careful attention will have to be paid to the teaching of the alphabet, handwriting and dictation,

reading and recitation, oral and written work, the choice of Readers and the method of questioning to be adopted in the class. The teacher should make it a point to be always kind and gentle and by his own contagious enthusiasm to rouse the dormant interest of the children for his subject. A great deal depends upon his personality, and the following hints are meant only as a guide to him and not as fettering his judgment in any way.

The Teaching of the Alphabet.

Sometimes a doubt arises as to which is to be taught first—the printed script or the ordinary written script. But a little thought will easily convince us that it is certainly more advantageous to begin with the printed script. Our object is to enable the children to begin reading for themselves as soon as they have learnt the alphabet. When they go through the streets of a city they would naturally try to understand the various advertisements in big type displayed everywhere; when they travel in a railway train they would try to know the names of the stations on the way. As all these are in printed script only, we should be helping our children considerably by beginning with the printed script and then passing on to the written script, say, after a period of five or six months. For everywhere Reading comes first and Writing only next.

As regards the method of teaching the alphabet there is a great divergence of opinion. There are three courses open for us. The first is the traditional method of teaching the alphabet, beginning with 'a' and ending with 'z.' The teacher writes the letter 'a' on the board and the children are asked to imitate him and to pronounce it as 'aye.' Thus one by one the characters of the alphabet are learnt. Usually it takes a month or two to learn the alphabet in this way.

This has been the method for a very long time, and hence it goes by the name of the 'traditional' method. It has thus got the sanctity of age with it. But the chief objection is that it is irrational and that when the time comes for the children to pronounce words, they experience very great difficulty. For instance, 'f a t' they are accustomed to read as 'ef aye tea' and they cannot for the life of them understand why this letter-group should be read as 'fat' and not as 'ef aye tea.'

Hence gradually this method has fallen in public favour and has given place to two others, the 'Look-and-say' and the 'Direct' methods. Each of these again has got its own defects, but when they are both combined together we get the easiest and most rational method of teaching the alphabet.

Although every word is made up of one or more letters, still for children the word is the unit of thought, and not the letter. Hence we try to form the picture or the image of every word in the minds of the children. Just as the artist draws the picture of a cat, so also the teacher draws the following picture on the board :—

c a t

and immediately the boys call it 'cat.' Similarly various other pictures are taught :—

d o g
p e n
b i d

Thus gradually all the characters are known and the sound-value of each is deduced by the children for themselves.*

This is not only the most natural and the easiest method to be adopted in the class-room but gives the most satisfactory results. A fortnight is usually enough for the children to master the alphabet, and, best of all, it presents no difficulties whatever in the learning of words or phrases later on.

Handwriting.

Too much stress cannot be laid on the importance of handwriting for our children. We do not thereby mean that it should always be beautiful, artistic or showy but that it should at least be neat and legible.

The development of handwriting has an interesting history for the past five or six centuries. In the Middle Ages the priest of the village was the only educated person, and his chief occupation was to copy manuscripts of books; and very often the copyist became more famous than the author himself! With the invention of the printing-press (and recently, of the type-writer) the outlook began to change and handwriting was

* Those teachers who follow the 'traditional' method use some type sentences for helping children to learn pronunciation, *e.g.*, A fat cat sat on a mat. But this method is neither interesting nor is it at all natural.

sadly neglected. This is a serious mistake; a neat hand is a valuable asset in the examination hall, in letter-writing, in keeping accounts and in several other ways. Further we have no business to tire our readers by writing an illegible hand. Separate periods need not however be set apart in the Time-table for 'handwriting' or 'copy-writing' as it is usually called; but the teacher should insist on his children writing a good hand, whenever there is an occasion for them to do so. And he should himself write neatly on the black-board, thus setting a good example for the children to follow.

Dictation.

The Dictation class is now not so much in vogue as before. It becomes tedious unless carefully handled, but when special attention is paid to it, it may be made quite interesting to the children and may form a powerful means of improving their spelling and handwriting. It need not be put down in the regular Time-table but once in a way, when the teacher feels the need, he may make it a useful and interesting diversion.

Spelling.

A word about spelling will not be out of place here. For a long time English spelling was in an unsettled state. The same word was spelt in different ways by different authors; but during the seventeenth and eighteenth centuries it became settled and the standard spelling was adopted everywhere.

In the middle of the nineteenth century the 'spelling-reform' movement appeared, and has tended to make some changes in the spelling of words. The Americans now write 'color' for 'colour,' 'thro' for 'through,' 'center' for 'centre,' and so on. However this may be, it is well for our children to learn to read and write according to the standard spelling, in order that they may be understood by all.

Reading.

Far more importance ought to be attached to Reading than is at present the case in our schools. Good reading is an essential part of all education, for it conduces to clearness and lucidity of thought. The greatest works of the world were written to be read or spoken aloud; and good reading helps to interpret them much better than a commentary. It is therefore advisable to devote not less than a quarter of an hour every day for this purpose.

The following rules are to be carefully observed in the Reading-lesson :—

1. Read slowly and distinctly.
2. Pronounce every word accurately.
3. Pause at the proper places.
4. Lay your accent and emphasis correctly.
5. Be audible throughout; and don't drop the voice at the end of a sentence.
6. Keep the eye ahead of the voice, especially when a page is to be turned.
7. Don't laugh at the jokes in a book.

Needless to say, good reading cannot be cultivated in a day or a week or even a month. Quiet and sustained practice for a long time is required to make one a good reader. And in order that the children may learn to read well it is essential that the teacher himself should set a model of good reading.

Phonetics.

In this connection it may be as well to discuss the use of phonetics in the Reading-lesson. Though phonetics may be used with great advantage in the higher classes, they are unnecessary in an elementary school; for they would only burden the children's memory with an additional (*viz.*, the phonetic) alphabet. Good pronunciation can very well be learnt by imitating the teacher's voice and nothing more seems called for at this stage.

It goes without saying that the teacher must know his phonetics thoroughly and be able to pronounce his words accurately. The more learned he is, the better for his children.

Recitation.

Recitation of good poetry stores the memory with the best thoughts of the best minds of the world, couched in the best language. It fills us with lofty sentiments and quickens in us the desire to live well and nobly. It imparts to us the poet's deep joy in the universe and helps us in no small degree to soothe our sufferings and to add a keener edge to our happiness. Indeed those lines which by frequent thought and repetition we have made our own, form our best comfort and solace in life. Only the selection has to be carefully made. The thought and language chosen should be simple, but as far as possible the poetry should be of the best kind.

Oral and written work.

A protest should be entered against the increasing number of 'note-books' which the children are made to carry even in the lowest classes. If the instruction is to be profitable, the work must be mainly oral. The questioning should be oral, the examination should be conducted orally, and the composition should be mainly oral. In fact almost everything in the class-work should be oral, the written work being reduced to a minimum.

For our ideal all along has been 'self-expression,' and nothing conduces so much to it as the children's ability to talk freely of their own ideas, thoughts and experiences. They should be made to look at a picture and asked to describe not only what they see in it actually but to give expression to the thoughts suggested by it; for this is one of the best ways of developing their imagination. From personal experience we can say that wherever it has been tried it has been found remarkably successful.

The Choice of Readers.

This may seem to be a mere trifle; but whether the children begin to love their English lesson or not depends a great deal on the wise choice of Readers. The primary requisites of a text-book should first of all be satisfied. There ought to be plenty of illustrations, the get-up should be neat and attractive, the printing should be bold in type and free from errors. But besides these, the matter included in it should be such as to be within the experience of our school-children. To talk of plum and apple-pie, of daisies and nightingales—things which the children have never seen—is the surest way to make the lesson uninteresting. There is no dearth of topics of common interest to all alike,—to those in England and in India, to us grown-ups and to the little children; and it is on this store that we should draw for our lessons both in prose and poetry.

By way of conclusion a few general hints may be given to make the English class both lively and interesting. Children are by nature imitative; they love activity better than rest; they prefer laughing and jumping and shouting to keeping quiet. As teachers, we should take advantage of all this, and give them the freest scope for the exercise of all these faculties by dramatising the stories read wherever possible. 'To act' a story is perhaps the best way of impressing its content on the minds of

the children; and further it helps the teacher by making the children take the greatest interest in the lesson.

For example let us take this simple yet beautiful poem on 'The Little Plant,' and see how well it lends itself to dramatization.

In the heart of a seed
Buried deep, so deep,
A dear little plant
Lay fast asleep.

'Wake,' said the sunshine,
'And creep to the light.'
'Wake,' said the voice
Of the raindrops bright.

The little plant heard,
And it rose to see
What the wonderful
Outside world might be.

To act this story, one of the children is rolled up in a rug. He lies still while the others repeat the first stanza very softly (because he is asleep). Standing on a high chair is a very bright child to represent the sun. He calls out at the beginning of the second stanza 'Wake :'—the rest of the children interpolate—'said the sunshine;' and the bright boy continues, 'and creep to the light.'

Another child representing a cloud passes in front of the sun. He scatters a few drops of water and cries 'Wake,' the rest of the children reciting again—

'said the voice
Of the raindrops bright.'

At the word 'Wake' the little boy begins to stir, putting out one foot first and then the other. He slowly comes out of the rug in which he has been rolled, and looks round with astonishment at whatever he sees in the room.

A few questions may profitably be asked about what he sees in the room and there will be a great deal of fun in his 'original' descriptions, especially of objects which are unfamiliar to him.

N. R. KEDARI RAO.

CHAPTER IX

NATURE-STUDY

What is nature-study?

Amongst the many new subjects that have been recently introduced in the Primary schools Nature-study stands out prominently. What is Nature-study? A question not so easy to answer as many people would suppose. Nature-study is first the study of Nature, which extends everywhere around us. Many definitions have been framed by eminent writers on the subject, and if we examine them we find each author has laid stress on his own point of view. Here are a few of these definitions:—

"Nature-study is seeing the things which one looks at, and the drawing of proper conclusions from what one sees." L. H. Bailey.

"Nature-study is nature studied in its relations by the child, from the child's stand-point, and by the teacher with the child." C. B. Scott.

"In Nature-study we aim at seeing, understanding, enjoying and practically learning from the natural world around us." J. A. Thomson.

Whatever definition we may favour, the aim of Nature-study is not primarily the learning of facts of Nature. It is a training of the eye and the mind to see and understand the common things of life. The chief purpose of the teacher is to create in the child a loving interest in the natural objects—living and non-living—around him.

Nature-study and object-lessons.

Nature-study is not an altogether new subject; for lessons on natural objects have been included in object lessons-which have long been given in Primary schools. Some might think, at first sight, that Nature-study is a new name for an old subject. There are marked differences between the two, and it is very important to note them. A very clear distinction between Nature-study and object-lessons is that lessons on manufactured articles—knives, pens, paper,—have no place in Nature-study.

Object-lessons as taught in most Primary schools have been of little value through the neglect of two principles.

(*a*) Instead of lessons on common birds and plants to be seen near the school the teachers gave lessons on the lion, the giraffe, the sago and coffee plants. Though the lessons were called object-lessons, they were very often given without the illustrative objects, and thus were not, in the true sense, object-lessons at all. Neither pictures nor models can take the place of objects.

(*b*) There is another defect in object-lessons. The object-lesson is one in which the pupil is made to acquire in a short time a certain amount of information complete in itself, so that the successive lessons are necessarily disconnected. As these lessons are based merely on objects, they can scarcely be other than detached. They often tend to become lessons in which the teacher imparts various items of general information. There is little or no call on the pupil's powers of observation and imagination.

The proper objects of Nature-study are those that one meets most often. Common plants, common birds, common insects and familiar rocks and minerals form excellent material for Nature-study.

General method of teaching.

More than in the matter, it is in the method of teaching that the merit of Nature-study lies. In every form of Nature-study the necessity of dealing *directly* with natural objects and phenomena is most important. In a proper Nature-lesson each pupil handles the objects, examines, draws them, performs various experiments and finds out something about them. From the beginning the pupil should learn, as far as possible, to rely on his own observations, and to draw his conclusions independently. The teacher should only guide the work of the pupil, and should not, as a rule, supply the information. He should arouse the curiosity of the pupil and put the latter in the path of self-effort. It must be borne in mind that Nature-study is not matter for the memory. The teacher should aim at developing the reasoning powers of his pupil by means of observation. The pupil's mind is not to be crammed with a store of facts however interesting they may be.

Subject matter of Nature-study.

What shall the children study? Nature is so vast and no teacher need find it hard to select the subjects for study or material for examination. Each school will select its own subjects according to the character of its locality, and arrange the topics for the lessons to suit the seasons. There is no doubt that the best material for Nature-study is to be found in the plant-world. Plants are the best-known and the most admired of natural objects in our environment. Next to plants come birds, frogs, insects and domestic animals whose life and habits can be observed by children out of doors. As living plants are connected with many other things such as soil, water, air, sun, all these form excellent topics for Nature-study.

The following syllabus of Nature-study issued by the Bombay Educational Department for the Primary schools in the Presidency will be found very handy:—

NATURE STUDY SYLLABUS FOR PRIMARY SCHOOLS

Infants.

Conversational lessons in field or garden on common plants and common animals.

Standard I.

(*a*) Examination of plants in the school-garden or near by in order to satisfy pupils that they are alive and growing. Seeds to be sown in moist sand so that the progress of growth may be watched.

Examination of some half-dozen available plants and certain different parts, *e.g.*, root, stem, leaves, flowers, fruits.

(*b*) Comparison and contrast between:—

(1) Buffalo and cow or bullock.
(2) Sheep and goat.
(3) Parrot and crow.

(*c*) The sky and what we see in it: sky, clouds, sun, moon and stars. Rain-water: whence it comes, whither it goes, and its work.

Standard II.

(*a*) Observation and recognition of fifteen local plants, and their chief parts, *e.g.*, bajri, jowari, wheat, rice, sugarcane, maize, mango, guava, pomegranate, plantain, date, cocoanut,

lemon; tur, gram, beans, peas, groundnuts; rose, jasmine, sunflower, gulmohur, marigold, tulsi; cucumber, melon, gourd.

(*b*) Observation of form and habits of five common animals, *e.g.*, duck, hen, sparrow, pigeon, horse, donkey, camel, snail.

(*c*) Observation of different positions of the sun by noting the directions of the shadow cast by a rod; telling the time by noting the position of the sun in the sky. Noting direction of wind.

Standard III.

(*a*) The root and its uses to the plant: distinguishing fibrous, tap, and bulbous roots.

The stem: different kinds, such as erect, creeping, climbing, and subterranean and their uses. Study of cross sections of stems with or without rings.

Leaves: children to be taught to point out differences distinguishing leaves collected by themselves.

(*b*) General habits and characteristics of birds that children know.

Classification of birds according to place of habitation, food, beak, and claws.

(*c*) Observation of the changes in the position and appearance of the moon from day to day.

Clouds: formation and kinds (heavy and light): effect of wind on clouds.

Rocks and soils: action of running water upon them.

Standard IV.

(*a*) Leaves in relation to light and water.

Parts of a flower and their uses.

Fruits succulent and dry; parts of a fruit.

Simple experiments to illustrate the conditions of germination.

(*b*) Life history of any insect kept under observation (*e.g.*, butterfly or silkworm) and of a frog.

A fish (when available) how fitted to live in water, weight, shape, covering, temperature, movements.

(*c*) Recognition of the brightest constellations, or if desired, a few lunar mansions.

Action of water, heat, cold and wind on rocks and soils.

Standard V.

(*a*) 1. Pollination by wind, insects, etc. 2. Fertilization. 3. Development. 4. Commonest forms of seed dispersal. 5. Germination.

Different habitats of plants.

Distinction between flowering and flowerless plants, a fern, a moss, and a mushroom being used as examples of the latter.

Nutrition of mango, loranthus, and mushroom.

(*b*) General study of bee or ant, fly or mosquito, beetle, and earthworm.

Observation (when permissible) of the structure of a hen's egg.

(*c*) Observation of heavenly bodies mentioned in the reader for this standard.

Formation of mist, dew, and hailstones.

Measurement of rainfall and temperature.

Observation of local rocks and soils.

Qualifications of the teacher.

An ordinary teacher is faced with the question, "Can I teach the subject without special training?" In order to work successfully the course of study suggested in the syllabus it is not necessary for the teacher to have received special training in Botany or other sciences. The teacher should however have a strong desire to make an earnest attempt to become better acquainted with familiar, yet unknown, facts of nature.

Steps in a lesson. (a) Relation to natural environment and the importance of out-door study.

It is scarcely necessary to indicate the points to which the observation of pupils should be directed, but many teachers err on the side of too much detail. The first step in the study of an object should be to find the relation of it to its natural environment or surroundings. Is it a plant, animal, bird or insect? Where was it found? Under what conditions? Is it a leaf, flower, root, branch, feather or shell, a part of something? To what did it belong? Where did did it come from?

The best way to relate a plant to its surroundings is to take the pupils out for a field lesson; in other words, the starting point in the study of an object is the excursion or out-door study. The aim is to gain or study what cannot be acquired in the school-room. In our out-door work we study such topics

as the form, colour and habit of trees, the relation of leaves and flowers to the plant and to the sun, the habits and homes of insects, birds and other animals, the work of rain or streams and the formation of soil. The purpose of each excursion should be clear to each pupil, and as far as possible no digressions should be allowed.

(b) Study of structure.

The next important step in the study of the object is the study of structure or arrangement of the parts, which is done partly out of doors and partly in the class-room with the specimens collected by the pupils. The structure in the plant or animal is that which fits it for its function or work. In connection with a plant, due attention should be directed to the more striking characteristics of its stem, leaves, and also when in season, to its flowers and fruit.

In the case of trees their bark—as to colour and use—, the wood, its colour and the rings that show the number of seasons may be observed and described. The question often arises, "How far is it wise to take up pupils with the details of structure or properties difficult to understand?" In general, in the work with the pupils of any grade, only those points of structure or those properties should be studied which either throw light on function or help in comparison, so far as pupils of that grade can understand them. For instance, even young children can understand or find out that the calyx of a flower folds about and protects the other parts and the corolla is beautiful and attracts the insects. In the study of the mineral mica, they can see its lustre (brilliant shine on its surface), transparency and cleavage (the property by which it is separated into thin leaves): it has many other properties which the young pupils need not study at all. Another question connected with the study of the structure is, "How far is it necessary or wise to dissect animals?" The higher aim of Nature-study, which is to develop a love for nature, must determine this. Domestic animals and pets should never be dissected before or for or by children. During the first two or three years children should never be allowed to pull to pieces plants or flowers. In later years they should do no more than is absolutely necessary. They should learn to have a reverence for life, animal or plant.

(c) The importance of drawing in Nature-study.

The best possible means of noting and expressing the chief points in the study of structure or the form and the relative position of parts, is Drawing. A few lines with pencil or chalk will give us a better idea of a plant or insect than we can get from a description in words. When making a drawing of an object, we are compelled to observe much more carefully than when giving a description of it. We must notice the relative position, shape and size of every part we draw. On the other hand nothing shows so forcibly to ourselves, as well as to others, any haziness in our ideas of form as the drawings we make. A drawing brings out the essentials and distinguishes them from the non-essentials. For example, when we attempt to draw a leaf, we see the necessity of selecting for representation important features of the leaf, its length, breadth and the position of the midrib and the relation of other veins (lines) to this. After we get the skeleton, *i.e.*, the essentials of form, we can add as many details as seem necessary. Thus drawing is an extremely helpful and important means of expressing what is learned in Nature-study. Whatever drawings the children make should be as careful and truthful as possible. Otherwise the drawing is likely to lead to the formation of careless habits of observation and expression. These drawings, however, must be judged from the standpoint of the pupil, not from that of the teacher. They should express the truth, as the pupils see it, and may not be artistic. Drawing of natural objects should begin in the class where Nature-study itself begins. Every object examined should be drawn. The drawings should be made in a note-book and each drawing should be explained by a description of the object written in the pupil's own words. The drawings may be in pencil on one page and the descriptive notes on the opposite page.

Study of development of growth.

After the study of structure of a plant or animal and its parts we come to the study of its life-history or growth. No other feature of plant-life has so much moral value for young pupils as the germination of seeds. Children love to watch the sprouting of seeds ; they are drawn to them and have a fellow-feeling. The study of germination and the history of the plant is very important from another point of view. The pupil should, from the very

beginning, study the plant as a whole and think of the root, stem, leaves and flowers not as distinct things, but in their relation to the whole plant. The study of the plant as a whole includes its whole life-history as well as its parts. The pupil who has grown a plant and has observed the roots reach down into the ground and branch there and has watched the leaves spread out and the flowers form fruits and seeds has the clearest idea of the necessity of each part for the whole.

School-gardens.

The idea of growing plants leads us to the subject of the school-garden, which has been recognised as an important branch of Nature-study. Many schools have gardens attached to them, and if gardening is systematically carried on, these gardens ought to be of great assistance in the study of plants. By a school-garden is meant a suitable piece of ground in which the pupils actually grow and tend plants for themselves and note the various stages of the growth of the plants taken for study. The school-garden need not be a very elaborate and showy product of agriculture. A few common vegetables, flowering annuals and two or three varieties of fruit-plants are *all* that are needed for a modest garden. The plants selected in the beginning should be such as are easily cultivated. It is not possible for all schools to have facilities for garden work, and in such schools there should be other means of studying the development of plants. If a boy cannot have the care of a little garden of his own, he may at least nurse a few plants in small boxes or flower-pots. The effects of moisture, warmth and light on the growth of plants should be demonstrated.

Life-history of animals.

There is no doubt that in the study of animals the knowledge of development is as important as in the study of plants. For many reasons the life-history of animals cannot be so readily observed as that of plants. Arrangements may however be made for some of the more careful pupils to study and record the life-stories of certain animals, such as the frog and the silkworm. Some pupils may try to trace the development of the young of any familiar animals which they have an opportunity of watching.

Rearing pets.

The keeping of living animals as pets in schools is regarded as a great factor in Nature-study. Pets are the children's natural introduction to animal life. The knowledge gained, by their means, of the animal as a whole, its habits, life and disposition is more living and real than that acquired by any other means. Each school may have a collection of pets, and children can easily be encouraged to feed and look after them. Among the pets which a school can easily bring up may be mentioned the following:—pigeons, rabbits, squirrels, guinea-pigs and chickens, if pupils have no objection to them. In no case should the keeping of animals be permitted if their well-being and comfort cannot be provided for in a thoroughly satisfactory manner. Similarly, when stray animals are brought for an examination of their features and handled by children, even the slightest cruelty should be checked, and the animals should be set free without having suffered any injury.

Domestic animals and familiar birds.

In the study of domestic animals pupils can make the required observation at home, while in the case of familiar birds the pupils may be asked to note their characteristics at home or near the school, or may be taken out to the trees on which the birds build their nests.

Observation of natural phenomena

Besides the study of plants and animals the syllabus of Nature-study embodies the observation of common natural phenomena. Children can observe and record the changes in the position of the sun by noting its position in the sky at different parts of the day and observing the direction of the shadow of a spike or pole erected in the school compound. They may also study the changes in the appearance and position of the moon in the sky from day to day. Children will learn to appreciate the beauty of the heavens by recognising and naming the more prominent planets, Venus, Mars, and Jupiter, and the chief star constellations in the different parts of the sky. They can state and record at regular intervals the character of the weather and the direction of the wind. Pupils in the senoir classes may observe, record and plot the daily recordings of the thermometer, hygrometer and rain-gauge. The work of streams in

breaking rocks, carrying soil and forming valleys, and other land-forms will be an interesting feature of earth-study.

Country Excursions.

Besides the weekly or bi-weekly lessons in Nature-study, frequent excursions—once in a month—into the country should be arranged and those features and phenomena of nature which cannot be seen in the pupils' locality should be observed. For example, children of town schools may be taken to a neighbouring hill and made to note the character of its vegetation and the rock forming the hill. The best way to show the action of running water on rocks is to take the pupils to a river in the district. They may visit a locality to note the characteristics of the particular groups of trees or the dwelling-places of birds or other animals. Certain questions and lines of investigation should be given to the pupils before starting, and they should be given in such a manner as to make the pupils thoroughly interested in discovering the facts.

An account of excursions should be written by each pupil. The pupils should develop the rough notes made in the field into a connected account, and should illustrate them by sketches. Specimens collected during the excursion may be described when writing the account. The language of the account is not a matter of primary importance, but what is of special value is that each pupil should learn to express in his own words what he has seen and learnt.

A collection of natural objects.

Another characteristic feature of Nature-study is that it brings out a strong desire to collect natural objects. The collecting instinct should be carefully guided; pupils should always be checked from indiscriminate robbing of birds, the ruthless killing of living creatures or thoughtless uprooting of plants only for the sake of increasing a collection. Nature-study should lead children to have a deep-seated respect for the rights and feelings of all creatures. For purposes of study, comparison and identification, it is useful to have a collection of specimens, and this the pupils should make. Collections may be made of the leaves displaying the various features of leaf-structure, of twigs showing buds and branching of flowers, of seeds and seed-cases showing methods of seed dispersal, of birds' feathers and deserted nests, of pebbles, rocks and minerals, and so on.

Preserving plants. In the case of plant specimens, a knowledge how to preserve them will be very helpful. The first thing required in the preserving of plants is the drying material. Ordinary blotting paper will do for delicate plants, though the best material is coarse and stout paper capable of absorbing moisture. If nothing better is available, newspaper answers the purpose fairly well. Cut the paper into sheets of convenient size. Next obtain two wooden boards about half an inch thick and a little larger than the paper. A few stones or bricks will complete the outfit. In collecting a plant specimen we should take care to get as complete and perfect a specimen as possible. In the case of big plants only portions should be selected to make the dried specimen as fully representative as possible. We should take one of the boards and put on it two or more sheets of paper. On the top sheet we should lay the plant or part of it, carefully arranging it so that its parts are as nearly as possible in their natural position. On the plant we should place some more sheets of paper, and then arrange another plant. We should go on in this manner until all the plant specimens are spread out, and finally put on the second board and then the weights. By the next day the sheets of paper will probably become damp. Then they must be changed for dry ones, and the damp papers should be dried in the sun. When changing the paper, we should lift the plants carefully and see that their leaves are in their natural position. After the specimens are dry they may be mounted on sheets of thick paper and kept by for future reference. We should fix the plants to the sheets by narrow strips of gummed paper. We should write on each mounted sheet the name of the plant in the left-hand corner and add the place and date of collection.

Correlation of Nature-study with other subjects. Nature-study is so much a part of the child's thought and interest that it will naturally form a centre of instruction for other subjects. The correlation of Nature-study and Drawing is so natural that it need not be told to the child. When the child is interested in studying any object, he enjoys illustrating his object with sketches. Nature-study descriptions give much excellent subject-matter for language work—essays and stories. Many aspects of Physical Geography belong to the province of Nature-study. The stream—its course and its work,—the rocks,

the soil and the weather, all form fit subjects for Nature-study lessons. In fact the geographical conditions of a locality have always shaped the life of the people there. The arithmetical problems presented by Nature-study are many; some of them are simple and suited to the very young children, while some of them are complicated. For example, seed distribution lends itself to calculation, or we may estimate the blossoms on the branch of a tree. Even History has its connection with Nature-study, when the attention of the pupil is turned to past events through the thought that the life of such a tree—for example, the banian tree—has covered so much of human history, or when a comparison of the present use of natural objects for industries is made with that of a hundred years ago.

Conclusion.

The Nature-lesson should be short and pointed, and may vary from 15 minutes to 40 minutes in length. There should be no waste of time; if it is an observation lesson, only a few points should be noted and the meaning of the observations made clear. If an outline be suggested for field-observation, it should be given in a clear manner which will make each pupil anxious to see the truth for himself. In concluding this chapter on Nature-study, it will be well to state some of the pitfalls of Nature-study teaching in our schools:—

(1) The danger of giving too much attention to subject matter or fact.

(2) Tendency to make a lesson too long and laborious.

(3) Practice of mere telling or explaining. (We should always set pupils to work.)

(4) Teaching without things or with things in museum collections. (Children should observe and handle living plants, living insects and living birds.)

M. RAMABRAHMA.

Books of Reference

A Hand-book of Nature-study ..	.. *Thompstone.*
Glimpses into the Life of Indian Plants	.. *Pfleiderer.*
Zoology for Indian Students ..	.. *Do.*
Chapters of Nature-study ..	.. *Lecog.*
An Introduction to Nature-study ..	.. *Stenhouse.*
Nature-study in Elementary Schools	.. *Mrs. Wilson.*
Object Lessons in Nature Knowledge	.. *Murche.*
The Aim and Method of Nature-study	.. *Rennie.*
Lessons in Plant and Animal Life	.. *Do.*
The Study of the Weather ..	.. *Chapman.*
The Boy's Book of Open Air ..	.. *Wood.*
Lessons from Zoology, I—III ..	.. *Duraiswamy Sastri.*

The Kindergarten Bulletin of the Teachers' College, Saidapet: Section on Nature-study.

CHAPTER X

MUSEUMS AND LIBRARIES

Educational practice in this country has naturally a tendency to lag behind educational theory. It is almost a truism to say that principles of pedagogy accepted to-day in Europe or America will begin to draw attention in this country two decades hence and that the adoption of methods in consonance with them will take more decades, by which time those principles will probably have been amended, or even abandoned, upon further investigation.

This general statement finds exemplification in the history of the attempts in this country to have museums and libraries made integral parts of schools. While experiments were being made in the United States in fashioning special museums and libraries for children, while their utility was being proved and while the saner curators and librarians were correcting the follies of enthusiasts, India knew nothing of it all, and when in recent years departmental pressure has been applied to compel educational institutions to provide themselves with museums and libraries, they have been organized on lines now abandoned elsewhere or reprobated by sound pedagogics.

Ordinary objections to museums and libraries.

Museums and libraries are considered to be really outside the scope of what the school authority should make provision for. A school is a place where children are taught: teaching implies teachers: to educate a child it is only necessary to bring together the teacher and the taught: there is no teaching in a museum or a library: they are therefore educational excrescences: and if the teacher interests himself in forming a museum or in bringing together a collection of books suitable to little ones,—well, the less teacher he, for he abandons his duty of teaching: thus argues the lay public. School revenues are limited in many cases and in many more the margin left over for the manager is very little: hence the manager's

objections to spending money on these adjuncts to a school. Many teachers too imagine that the movement in favour of museums and libraries for school-children is the offspring of educational heterodoxy.

Training the child's powers of observation.

These views do not require to be seriously combated. Of the three methods of attaining to mental culture,—reading, observing and thinking—it is generally the first that has been really taught in schools. But reading is more for the adult than for the child, and in the child the faculty of thinking can be cultivated in only its rudimentary forms. Hence it is that great stress has to be laid on the importance of stimulating and training the child's powers of observation. A child normally constituted is very observant when its interest is aroused and it even attempts to learn more than is good for it. It takes a keen interest in the things round about it, and often the problem is not so much how to awaken interest as how to satisfy the interest that already exists in the child's mind. The child's prediliction for probing to the very heart of a matter either by endless questioning or by pulling a thing to pieces, is just the quality to be kept alive and fostered. One might go the length almost of laying it down as an axiom that, for children, observation must precede reading. The tragedy in the education of the child is that the training of its powers of observation, in spite of its pedagogical importance, is so completely neglected by the teacher that the powers are almost entirely extinguished by the time the child leaves school. Urban schools sin greatly in helping to kill in children the faculty of observation, and rural schools, following the methods of the urban schools, sin no less heavily. The school-going child is generally a child whose innate keenness of observation is being lost through atrophy.

Organizing an elementary school museum.

The organizing of museums and libraries the use of which will not demand of the elementary school child the exercise of intellectual powers not developed in him, is indeed a task of great difficulty. Fortunately the little child of the elementary school wants neither unique specimens nor 'touch-me-not' things, and the exhibits need be neither costly nor numerous. From even the purely pedagogical point of view

it is almost imperative that the elementary school museum should cost as little as possible. The child's attention, unlike the adult's, centres round even the commonest objects, provided he can handle them or turn them into playthings. Such common objects yield more and better instruction to the child than exhibits specially prepared, cleverly mounted and rigorously guarded. To the child the usefulness of an exhibit does not depend on its intrinsic utility but on how far he can use it. By handling the objects and using them as playthings he secures information, literally, at first hand and from concrete materials. Where, however, it is desired to introduce the children to costly or rare specimens, the district educational authority or the co-operative effort of the schools of the district must provide cabinets, to go in circulation to the schools.

The children's museum in an elementary school must be something of an exhibition, something of a playground and something of a garden. The average teacher does not stand in need of being told what objects are generally placed in school museums and he will have no great difficulty in starting an exhibition in the museum of his school. He will have greater difficulty, however, in so using the museum as to make it a kind of playground and garden too.

The museum as garden.

The children may, in the season of blossoms, be set to gather the flowers that the wayside, the garden and the park have to offer and may be induced to bring them all to the school-museum, spread them out on the floor and discuss, in their childish fashion, the flowers they have brought, the trees or plants from which they have gathered them and the time of the year. They may be taught to observe and chronicle what birds visit the locality and what flowers are put forth in the various seasons ; they may be set to trace the life-histories of the various plants in the school-garden and they may be asked to be on the look-out for insect-pests. Children love birds and they require but little encouragement to form themselves into clubs for the study of bird-life. A bee-hive will be the centre of much interest and the wellspring of much instruction, including the familiar contrast with the ways of wasps. Children take interest in butterflies, moths and even caterpillars, frogs, snails and lizards, and they do not require any forcing to observe

their ways and to study their characteristics. A small self-balancing aquarium will add greatly to the attractions of the museum.

Children know the use of quinine and eucalyptus oil, they drink coffee or take tea, and have had a taste of pepper or sugar; but few of them have seen even pictures of the plants or trees from which these things are derived; the museum may therefore include at least pictures of them. They may be made to look for the most common medicinal plants, collect specimens and compare them with the preserved specimens in the museum. Even plant-skeletons, practically rescued from the rubbish-heap, will provide instruction of value. This is the best method of teaching children to observe nature and study her in all her plenty and variety.

The museum as playground.

Little models, such as those of an island, a chain of hills, a mountain, a peak or a pass, a harbour in a sea, and of a canoe, a boat, a sailing ship, a steamer or a warship will interest the children immensely and help to give them a clear grasp of what they read about in their books. Toys such as models of household utensils or of soldiers, swords, machine-guns and 'tanks' have their educative value. The delight that children take in things mechanical may be turned to account by providing models of mechanical appliances which they may be allowed to work. A collection of pictures clipped from odd magazines and mounted on stout manila paper and well arranged will illustrate a hypothetical world tour. Stereographs also may be made available. Models of places of pilgrimage and their surroundings will stimulate the geographical and the religious interests of the children.

General hints

These are mere suggestions and hints of the lines on which an elementary school museum may be organised and run. Place the objects and hang the pictures low enough for the children to see. The walls of the museum should be prepared to a height of about four feet from the floor to serve as black-boards so that the children may draw thereon, in various colours, sketches of objects in the museum. Keep changing the exhibits and if you have an abundant stock of them do not put them all out at once; children,

especially in rural areas, stay for years in the same school and an unchanging museum will repel them. Above all, the running of a museum should be no mere fleeting fancy either with the teacher or the children.

Museum and library : their places in education.

In a scheme of education in which the museum plays so important a part it would seem almost as if books have no place and are to be entirely discarded. To form such an impression is to misunderstand the scope of the children's museum. While formal instruction endeavours to train the intellect of the child, the museum seeks to bring him into actual contact with God's creation and man's handiwork. The library, on the other hand, seeks to cultivate the imagination, mould the emotions and fashion the morals of the child. The extreme folly of limiting too rigorously the child's activities and compelling his mind never to stray beyond the edges of the primers that help him to spell or to cast up figures needs no exposure. Fairy tales, legends, myths, the lives of saints, the tales of the origins of the great religious festivals, animal and other nature stories, tales from the *puranas* and the classics, and romantic stories furnish the themes that attract the child and keep him spell-bound. These are the staple on which children of all lands have at all times been bred. Tales of tiny tots and great giants will interest them and skilfully woven 'tales' of even the malaria bacillus and the dinosaur will not merely be endured but even devoured with avidity and will lay the foundations of scientific knowledge. Skilled writers can not only make these intelligible to the little child that attends the elementary school but can even make them convey to him some of the pleasures of literature.

Selection of library books.

The teacher should grade the books to suit the various children. Where circulating libraries taking books to the schools of a district from a central supply bureau are working satisfactorily, the teacher will have little difficulty in selecting books of every grade for distribution among the children of his school. Only the senior children in the elementary schools will be able to use books, but the younger ones have the benefit of the story hour when easier stories are narrated to them.

Children's books.

Children's books are all too few in this country and will continue to be few so long as it is not recognised both by teachers and parents that school primers are not the only books that children can use. The general poverty of the people and the consequent absence of inducement to literary men to produce this class of literature are also among the causes of this paucity of children's books. The poverty of the people does, indeed, affect educational methods in this country and it is in view of the difficulty with which funds can be found for equipment in the way of magic lanterns and cinematographs that all reference to them has been omitted in this paper. But there is no reason why every school authority should not be compelled to provide, acting by itself or in co-operation with other school authorities, suitable reading for the children whose education is entrusted to it. Those who know how sumptuously bound and profusely illustrated are the picture-books and the rag-books and the children's magazines published in most European languages or have read, for instance, the Children's Column that is a feature of most American newspapers cannot but commisserate the poor Indian school-children on their great ill-luck.

Museums and libraries must be properly used.

The teacher should not be allowed to forget that museums and libraries, however well equipped, are of little utility if the educational aim is not kept steadily in view. Children should be helped to use them properly and profitably. Unless each child is questioned about how it busied itself in the museum or what it read out of the book it took down from the library shelf and unless its doubts and difficulties are cleared up, the museum and the library will serve no educational purpose. The most profitable course to adopt is to induce the children to exercise their love of self-expression in connection with their work in the museum and the library, as by requiring them to draw pictures or make models to illustrate what they have read about or have seen.

The teacher's share.

Where museums and libraries are organised on the lines sketched out above, it has to be admitted that the teacher will be subjected to heavy work. Deciding what materials will interest the children, thinking out the ways in which the objects in the museum

can be correlated with the subjects in the school-curriculum, collecting the objects and getting them ready for being placed in show-cases, maintaining the museum in decent order, planning out excursions and managing the children when they are out, keeping them from quarrelling with one another or damaging the objects in the museum, studying the peculiarities of each child, noting what each child concerned himself with in the hour he spent in the museum or in the library and questioning him about, or guiding him in, his activities there and putting him in the way of acquiring knowledge, are duties that will tax the teacher severely. These duties, however, will scarcely weigh heavily on him or impair the efficiency of his school-work, if the teachers in the school help each other loyally. Even if formal instruction is likely to suffer to some extent, those who have known how far the Kindergarten and allied methods have gone to displace formal instruction and how much children have benefited in consequence will not look with dismay at the prospect.

T. G. ARAVAMUTHAN.

CHAPTER XI

PHYSICAL TRAINING

Physical Exercises

It is absolutely necessary that all the muscles of the body should be exercised, so that there is harmonious development throughout and no part is overdeveloped at the sacrifice of another part. Hence physical exercises are practised in schools. There are many books published giving the various exercises necessary, but it seems to me the teacher needs some guidance in the using of these exercises, as without this guidance the most careful teacher is apt to neglect some muscular group and overwork another, especially in the case of young children.

The following very straightforward games are planned so that each fulfills the same purpose as the exercise under which it is placed, besides giving greater enjoyment to the children :—

Exercises for Juniors

Introductory Exercises. Breathing.

Trains. Children place their hands on the shoulders of those in front, rise on their toes, inhale, and then set off with the characteristic "ch—ch—ch" of a train in motion. A guard with a green flag and a whistle and a signalman with a red flag greatly add to the pleasure of the game.

Form two lines. Arrange two stations at the ends of playground or hall, and give them names of places known to the children, *e.g.*, Madras, Calcutta. See which train will win, Madras to Calcutta or Calcutta to Madras. No carriage must become uncoupled, of course.

Blowing Trumpets. Children form lines of soldiers. Place hands to form a trumpet, and march forward blowing through them. Heads well erect. Any definite bugle-call played on the piano increases the realism.

Head.

The Mandarin Nod. Bending forward like a Chinese : up, down, up, down, etc.

Little Ducks. Bending backward. Heads are put right down, to 'get a good drink,' then stretched up and back to swallow it. Then 'down again to the little pond, and have another drink.'

Pendulum. Bending sideways. To the right and left, to the words, 'Tick, tock,' etc.

Leg.

Stepping-stones. These can be drawn or imagined, and the children step daintily on their toes from one to the other. On a flagged pavement children never tire of stepping from stone to stone without touching the cement line between them. This can be made into a contest.

Trunk Bending.

Trunk bending forward is a most difficult exercise, owing to the great effort and control needed to isolate the correct part of the trunk. Therefore it is quite unsuitable for children. It is an exercise better neglected than performed incorrectly, as an exaggerated bend means a physical deformity—hollow back. So with the little ones we leave it out.

Gathering Flowers. Bending forward and downward. Children stoop down, 'pick flowers,' stand up straight, 'smell flowers,' breathing in deeply. Expel breath by an appreciative "Oh" or "Ah."

Arm Stretching.

Pumping Water. Children use the right arm, left arm, both arms. See that plenty of vigour is put into the action. The value of arm exercises depends upon the vigour used.

Chopping, Hammering, Sawing, etc. Children imitate the actions suggested, using the right and left hands alternately.

Tug of War. Two lines face each other. Right foot placed forward toeing a certain line. Right hands are clasped across, and partners pull. The one who gets his partner across the line wins. Repeat with left foot forward and left hands clasped.

Balance.

Peeping over a Wall. Teacher extends hand a little above children's eye-level. "Here is a wall. Who can peep over it?" Raise height of wall, so that children must get well up on their toes. Make up little tales about the rosy apples, the kittens, the children, etc., in the next garden, and that can be seen if they just get up high enough.

Giants and Dwarfs. An old favourite. Children march four steps forward with arms raised above their heads and on tip-toe; then four steps hands on hips, knees bent well out, back straight. Position changed after every four steps.

Water Carriers. Let the children imagine they have the water-pots on their heads, or use books instead. Insist on the head being kept upright, and the step firm and decided. The improvement made in the general carriage is quite remarkable.

The Soldier's Circle. On wet days, after a long march, when the ground is too wet to rest on, the soldiers march into a circle, with only short spaces between the men. On the word 'sit' each bends exactly as if sitting on a chair, and sits on the knees of the man behind.

Fairy March. With arms at shoulder level to flap like wings, the fairies tip-toe round, so that no mortals can hear them.

The Cock Walk. Children march round, stepping like a cock. They should commence with the right foot, and, as the walk is in three movements, the balance will alternately fall left and right. Movements as above. Hopping in any form up and down the room or on little plans drawn on the floor. This exercise again may be made into contests.

See-saw. Partners face and take hold of both hands. Each in turn bends and rises, the partner performing the second movement first.

Push Contest. Two lines face each other, partners being exactly opposite each other. There should be a double distance, *i.e.* two feet, between each line. The partners put the right foot forward, so that the opposite feet touch each other, to get a steady position. The hands are stretched forward so that the partners' palms touch one another, and on word 'go' both push. The game is to drive the partner from his position backwards. The hands must touch all the time and the arms be kept extended.

Shoulder.

Thunder. Where the room is suitable and clean, this is always a great favourite. Children lie on their backs, and as rapidly as possible kick on the ground with alternate feet. The louder the thunder, the greater the fun. Let the thunder roll away in the distance, and the kicking get quieter and slower.

Abdominal.

Climbing High Stairs. Each step is very high. Bend leg at a right angle if possible and take a step. Repeat with alternate feet. To be of abdominal benefit the leg must be raised high.

Lateral.

Wind-mills. Arms sideways stretch. Bend the body to right and left alternately. Front and back rows working in opposite directions give a better idea of the four sails of the wind-mill, especially if partners stand directly behind the front ones. As a variation, choose four children to represent the north, south, east and west winds, and place them on their respective sides of the room. The wind-mills should then sway according to the direction of the wind in motion. The teacher can decide which wind is to blow, or the winds can arrange the order of blowing beforehand.

Flowers or Corn in the Wind. Sway to and fro to represent the motion.

Jumping.

Kangaroo Leaps. Children stoop down, hands well towards floor, but bodies upright. Then they spring upward and forward. The bodies must not bend, or the baby kangaroos will fall out of the mother's pouch.

Bunny Jumps. Children are on all fours. They jump forward. Hands touch ground first, and feet quickly afterwards. To be like a rabbit-movement, the jumps must be quickly and nimbly performed.

A Test. Children close eyes and jump to face the clock or the black-board or teacher's desk or any object that is sufficiently prominent to have been noticed. This test quickens both the observation and memory, and helps to train the sense of direction.

Bouncing Balls. Children jump lightly on their toes—high jumps at first, then lower and lower till they gradually cease. All jumping must be done on their toes, to prevent a jar to the spine and injury to the foot.

Breathing.

The Winds. A little summer wind blows like this—Gentle blow. A north-east wind like this—Louder. A winter tempest howls like this—Oo-oo-oo, ow, ow-ow-ow.

Insist on a deep inhaling first. The noise of the wind will ensure the exhaling being good.

It is not suggested that all the foregoing can be taken in any one lesson, but there should always be a selection from each group, and then the teacher can rest assured that in some

part of the lesson every muscle in the body has taken part. This is the only method which will secure all-round development.

Exercises for Seniors

Getting into position.

The boys march out and are placed in two files, numbered and opened out. How many teachers have lost temper, and repeated the performance until it was done correctly, and until every boy remembered—to forget the next time—that odd numbers move to the left and even numbers to the right, with the result that five or six of the precious twenty minutes have gone before the lesson is even begun!

This is obviated by the use of the following method. The boys march out into the playground and are halted. There are four leaders, one for each file. On the word "Leaders—fall in" they run to their position. Then comes the order "Class—fall in" and the lads run to their own places. The lesson then commences. By a class of 30 boys the whole movement has been finished in seven seconds.

The "game" spirit is further cultivated in this way: each file is numbered 1, 2, 3, 4, and the four walls of the playground are also numbered 1, 2, 3 and 4. Once or twice in a lesson the order is given, "Go—1," and file 1 rushes off to its "home." "Go—2," "Go—3," "Go—4," follow in rapid succession. "Come—1," "Come—4," "Come—2," "Go—1," etc. The boys run with zest either to or from the walls, and when it is finished—and the whole does not take more than a minute—you see 30 smiling faces.

Introductory exercises. Leg.

Head, leg, and breathing exercises are given. If the weather is dry let the children sit down with cross legs—tailor fashion—and get up again without touching the ground with their hands.

Head.

Obstinate Rabbit. Files 1 and 3 are "rabbits," files 2 and 4 are "men." On the word "Inward turn" 1 and 2 face each other, and 3 and 4 do likewise. Command—"Rabbits, one." The boys go on their hands and knees, with heads well up. On the command "Two" the "men" grasp round the "rabbits," necks with both hands.

On the word " Pull " the fun begins. At the word of command the files fall in and 2 and 4 become " rabbits " and 1 and 3 the " men " and the game is reversed.

In wet weather the rabbits need not kneel but may bend forward with hands on knees. This little game does the work of a head exercise primarily, and other parts also are brought in.

Weighing Salt. Again the children work in pairs. This time they are back to back. Link up with the elbows. On the word of command one of each of the pairs does the " Trunk forward bend," thus lifting his companion off the ground. He then straightens himself, and the other set of children do the same movement, the whole of the movement being a rocking backward and forward. Care should be taken that the children do not rock too violently.

Arm Stretching.

Files 1 and 2 face each other, and 3 and 4 do the same. On the word " Grasp " each child grasps his partner by the right or left hand. On the word " Pull " each tries to drag his opponent to the wall. This is known as " Single Pull."

This exercise can be varied by the " Chain Pull." No. 1 of a file, with left hand, grasps left hand of No. 1 of the opposite file and with his right hand he grasps right hand of No. 2 opposite. No. 2 with left hand grasps No. 2 by the left hand, and with his right hand grasps right hand of No. 3, and so on, thus making a chain. On the word " Pull " the dragging commences.

War March. This game introduces lunging. Class lines up in two ranks facing each other any distance apart, depending on the size of the playground. On the word " One " each child lunges with right foot, at the same time with arms oblique stretching. On the command " Two " all lunge with left foot and change arms. This continues until the two ranks are close together. Then the order " Single grasps " or " Chain grasp" is given, and the pulling commences as in the above exercise.

Balancing movements.

Bouncing Balls.—On the spot; forward; backward; with turning. This is an upward jump movement. Insist on a correct landing on the toes with knees bent, and a good full stretch upward with knees well back while in the air, arms at the attention position. In bouncing on the spot the children

imitate a ball, the first bouncing being the highest and gradually decreasing in height until the children come to rest. The "backward," "forward," and "with turning" may be done as the teacher wishes.

Hopping Wrestle. Children work in pairs. Each stands on one leg (both right or left) and grasps the other's shoulders with his hands. The game is to force the opponent to put his leg down to the ground.

Abdominal Exercise.

Crouch standing to stretch standing. Full knee bend with hands by the sides. Then children take a vigorous upward jump, at the same time throwing up the hands at upward stretch and bringing them down again as they land once more in the position of crouch standing. Again on the upward jump insist on a full stretch of the whole body.

Wheelbarrow. This old-fashioned game needs no explanation. Every child knows it, but it is a splendid abdominal exercise. The child who is wheeling grasps the knee, and as boys become stronger ankle grasp may be used.

Roundabouts. Let the children rest one hand on the ground, and keeping it firmly fixed try how far they can walk round in a circle, the hand being the centre. Try both hands. As a variation let the feet be fixed, and walk round on the hands.

Ball exercises.

First exercise. Arrange the class in two lines, the smallest on the left, then open out by forming fours. Each has a ball in his right hand. Give the caution: "Arms forward; stretch; count one. First ball exercise: commence; count two." On the word "Commence" each throws the ball into the air, using both hands, catching it similarly. Continue counting to about sixteen.

This exercise demands considerable alertness and attention. It is a capital exercise for vision training, and it exercises the muscles of the arms, hands, neck and trunk. Prompt action is necessary in order to keep strict time and add to the beauty of this exercise.

Second exercise. Command: "Arms forward; stretch; count one. Second ball exercise: commence; count two." The pupils throw up their balls with the right hands, and catch with the left hands. After counting eight—change, *i.e.*,

throw up the balls with the left hands and catch with the right hands.

This ball exercise is a capital one for cultivating dexterity on the part of the scholars. To make these exercises of use in after-life the commands should be given in a sharp, crisp tone, and the teacher should insist on obedience and prompt and quick action.

Third exercise. Command: "Arms forward; raise; count one. Third ball exercise: commence; count two." The pupils bounce their balls on the ground with both hands, catching them similarly. Count sixteen.

Naturally in this exercise the trunk must be bent slightly forward, thus exercising the muscles of the body. The necessity to locate the ball is an eye-training exercise. The muscles of the shoulders, arms and hands are also brought into play.

Fourth exercise. Command: "Arms forward; raise; count one. Fourth ball exercise: commence; count two." The ball is bounced on the ground with the right hand and caught with the left. After eight has been counted give the command: "Balls—change." Bounce with the left hand, and catch with the right hand, counting eight.

Fifth exercise. Command: "Heels raise; arms upward; stretch; count one, two. Fifth ball exercise: commence; count three." Throw the ball from the right hand into the left hand, from the left back to the right; count sixteen.

This is a capital balance exercise. The legs, toes, head, eyes, neck and arms are all called to action.

Sixth exercise. Command: "Arms forward; stretch; count one. Sixth ball exercise: commence; count two." The balls are thrown into the air as in exercise one, but before catching them the pupils clap their hands once, twice, thrice, or more times as the teacher may suggest. Of course, the more claps, the higher the ball must be thrown.

Seventh exercise. Command: "Arms forward; raise; count one. Seventh ball exercise: commence; count two." The pupils bounce their balls on the ground to their right, turning in that direction with the right foot. In catching the ball the left foot must be brought smartly up to the right. Continue the exercise, turning to the right each time the ball

is bounced. When the pupils come to their original position the exercise is repeated turning to the left.

This exercise calls for considerable alertness, and agility.

Games

It is extraordinary, but unfortunately true, that the only games that the elementary school teacher seems to know are Football and Tennis. As the children cannot play tennis for more reasons than one, football is the only game played in the majority of the elementary schools that I have visited. I therefore give below a few simple games, and how they may be played, and I would also advise the teachers to get hold of some of the national games that are being played by the children in every village and adopt them for school use.

Cat and Mouse. This is a popular game with little children the world over. In this game the children stand in a ring. The mouse in the beginning is inside the circle and the cat outside. The cat rushes round the circle and dashes through in order to catch the mouse. The players try to help the mouse by raising their arms or letting go hands in order to allow the mouse to pass through, but prevent the cat from passing with equal ease. When the mouse is caught he in turn becomes cat and chooses his mouse from the ring.

Rama and Sita. The children stand in a ring. One child is blindfolded, and if a boy, he must select a girl from the ring to be Sita. She then calls out " Rama," and he must try to find out (inside the ring) from where the sound comes and catch the girl who of course tries to get out of the way. After she is caught the girl is blindfolded and chooses another Rama.

Slap John. The children stand in a ring. One child runs around the outside of the ring and touches another child. This child immediately runs around the ring in the opposite direction in an attempt to reach the place from which he started before the other child can do so. The child who reaches the original place first becomes a member of the ring and the other child must run round, touch another John, and so on.

Beetle Tag. The children stand in a ring with their hands behind them. One child goes round the outside of the ring with a knotted handkerchief; he lays this ' beetle,' as it is called, in the hands of one of the children, who immediately pursues him and seeks to strike him with the beetle before he can get

back to the place from where he started. After this the second child in turn places the beetle in the hands of a third child, and the process is repeated.

Bull in the Ring. The children stand in a circle holding hands. One child in the centre is the bull. He dashes across the circle as hard as he can and seeks to break through the ring, while the children hold each other's hands as tightly as possible so as to prevent this. If the bull should break through, the children pursue him, and whoever touches him first becomes the new bull.

Three Deep. The children stand in two circles, one inside the other, so that the whole circle is two deep. One of these couples now stands out of the ring and one becomes chaser and the other runner. Whenever the runner is hard pressed, he may step in front of any couple. The line then becomes three deep and the outside child must run. If he is touched before he can get started, then he becomes the chaser and the former pursuer must run. If it is played rapidly it becomes a very exciting game.

Circle Catch Ball. The children stand in a circle with one child in the centre: a ball is thrown across from one child to another. If the child in the centre succeeds in touching the ball while it is held by a child, or touches it while it is in the air, then the child holding the ball, or the child who last threw it must come into the centre while the one originally in the centre returns to the ring.

Ring Toss. Rope quoits are thrown into a basket a few feet away from the child. The child who gets the largest number of quoits into the basket, wins the game.

Potato Race. This race is popular nearly everywhere. Each child has five potatoes or pieces of chalk which are placed in a straight line about six feet apart, the first potato being a similar distance from the circle from which the race begins. The runners must gather each potato separately and place it in the circle, the one who gets the last potato in first winning the race.

Relay Race. The children who are to enter the race are lined up in two lines, behind some fixed starting point. They run to some object which should not be more than thirty or

forty yards distant, touch it or pass round it, and return to touch the hand of the next one in the line. The race is won by the line whose last runner first gets home.

The Shuttle Relay. Two or more groups of children are arranged at opposite ends of the running space. At the signal, the child at the starting point of each line rushes across and touches the hand of the child of his own line at the opposite end, when this child in turn dashes back to touch the hand of the next child at the starting point, which continues till every child has run. The line whose last runner first gets home wins the race.

Tag. This is (in various forms) a very well-known game among children. In its simplest form it consists of one player who is "It" chasing his companions and the boy who is touched becomes "It" and in his turn chases his companions, and so on. A variation of the game is that no person may be touched who is holding on to any object made of wood, but there may be a time limit (reckoned by counting aloud on the part of the hunter) beyond which time the same player may not remain in the same spot.

Rabbit Warrens. Arrange players in groups of 3 or 5. Each group forms a rabbit-hole ring, the players taking hands. Two children in the centre are rabbits. One chases the other, who tries to get into a rabbit-hole for safety. If he is caught he becomes pursuer. When a rabbit gets into a hole the pursuer touches one of the players forming that ring and runs away, the one touched becoming the pursuer. The rabbit who has just sheltered forms one of the ring and the game goes on. This game is particularly good for a big class and can be played either indoors or in the playground.

Where is the Whistle. A number of players should be blindfolded and should stand in a line at one end of the playground. Another player provided with a whistle or a bell goes to the other end of the ground. On the first sound of the whistle or bell, the blind men start out to find him. In this they are guided solely by the sound of the whistle which must be heard somewhat frequently. The aim of the players is to find and touch the whistle-blower and as each succeeds in doing this he takes the handkerchief from his eyes and retires from the field.

Wild Man. Two parallel lines are drawn on the ground some distance apart. Between them the wild man takes his place, the other players distributing themselves equally on the two lines. The object of the game is for the players on the lines to cross the territory of the wild man without being touched by him. Any one who is touched in crossing becomes wild man in turn, the previous holder of the part returning to the other players.

Push and Go. The players stand with folded arms inside a circle drawn on the playground. The game consists in trying to push other players out of the ring, by pressing against them with one's shoulders. Any one who is thus compelled to put his foot over the line is out of the game. The winner is, of course, the player left in the circle after all the rest have been pushed out. It is most important that the element of roughness be kept out of the game and the players must therefore understand clearly that the only force to be used is a direct and steady push and that sudden attacks and jerks disqualify any one who uses these methods.

Cricket, the king of outdoor games, is too well known to be described.

Hand-tennis. The playground is divided into two equal parts by a line drawn across the middle. Over this line a cord is stretched from side to side about four feet from the ground. The players are divided into equal parties, each party being again redivided into three squads, A, B and C, in the proportion of 3, 2, 1. Squad A stands along a line about five yards from the middle with gaps of several feet between each pair of players. Squad B takes up its position in a line a little further back (the gaps being greater as there are a smaller number of boys), while squad C is still further behind. A good tennis-ball is used for the game and is put into play by being bounced on the ground and struck forward with the hand as it rises. It must always go over the cord and may be returned by the opponent who is in the most convenient position. The return may be made either before the ball touches the ground, or when it has bounced once. Scoring as in Lawn-tennis or by ones—the rules of Badminton as to serving, etc., may apply here.

CORRIE GORDON.

CHAPTER XII

HEALTH OF THE CHILD AT SCHOOL

One of the greatest boons that a man or woman can have is good health. The children of to-day will be the men and women of the future. It is therefore an imperative duty of every teacher of a school who is put in charge of boys and girls to know something about the health of children at school. Children that are healthy find a pleasure in games, they have a good appetite, and they sleep soundly, and look refreshed in the morning.

Fresh Air.

Fresh air is a very important thing for children. Everything that lives, whether a plant or an animal, must have a good supply of air, and teachers must see that the air that children get is the best possible, as their health will depend largely on the purity of the air they breathe. Air consists of a mixture of several gases, but the important ones are called Oxygen, Nitrogen and Carbonic Acid. For the purpose of breathing, however, only Oxygen and Carbonic Acid gas need be studied. In breathing, the body is constantly using up Oxygen and giving out Carbonic Acid, and the chief way that the air is purified and is kept fresh is that plants need air and take in the Carbonic Acid and give out the Oxygen. Every means therefore should be taken in a school for keeping the air of a room pure by having the room well ventilated. Every room should have at least one window and one door and these should be left open for some time during each day when everybody is out of the room.

In taking care of the health of a child we need to think of the different parts of the body.

The Skin.

The skin protects the parts inside from injury, and, prevents the body from becoming too hot by producing sweat, or from becoming too cold by the layer of fat which lies underneath the surface. It is important therefore that the skin should be kept clean by washing with water and soap. It is a good plan to have a bath once every day in the morning and, for those who

are able to stand it, a cold bath is healthy and refreshing. The bath should be taken quickly and the skin dried at once with a rough towel. With some children a tepid or slightly warm bath may be necessary. The face and the hands require more frequent and more thorough washing as they are exposed to dirt and dust floating about in the air. If the children neglect to keep their hands clean, cuts and scratches will fester and may cause serious damage to their health.

The Nails.

The nails should be kept clean and be periodically cut. The toe-nails should be cut straight across; otherwise the painful condition known as 'ingrowing toe-nails' may be caused.

The Hair.

The hair needs extra care to ensure its cleanliness and should be thoroughly washed with soap and water and thoroughly dried to prevent it from matting together.

The Teeth.

The teeth require to be kept clean, not only for the sake of appearance, but because they decay if not well cared for. Bad teeth cause a great deal of ill-health. They interfere with the proper taking of food and allow poison to enter the body through the gums. The teeth should be brushed night and morning, but specially at night. It is a good habit to have the teeth of the children examined by a dentist every few months.

Clothing.

In order to be in good health the bodies of children have to be kept reasonably warm and protected from sudden changes of the weather. According as the weather is cold or hot, the body must be covered with clothing through which it is more or less difficult for the warmth to pass. In India ordinarily one should wear cotton clothing in the summer and woollen in the winter. The clothes should not be so tight as to interfere with the movements of the body. The clothes should be changed regularly and what is worn during the day should be taken off at night.

Food and Digestion.

Food and Digestion are important items in the bringing up of children. Food helps to keep the body warm and gives power to work, and it replaces the wasting that goes on as the result of work. There are different kinds of food, but the amount of each kind of food that should be used is important. If

one were fed on fats, sugar and starches alone, one would not be able to live and work comfortably, nor could one expect to be in good health when living entirely on butcher's meat. It has therefore been found best to use what is known as a 'mixed diet.' If the body is to be kept healthy, the right kind of food must be used; it should be properly cooked, it should be taken regularly and it should be eaten in the right way. The stomach takes some time to get rid of a meal and it requires to rest before a second meal is taken. It has been considered best to allow four or five hours to pass between two meals. Children should be taught early to eat their food slowly, and each bite should be chewed and mixed with the fluid in the mouth before it is swallowed.

Water.

It is very important to see that water which is supplied to children is pure, and to make sure that it is so, it is well to boil the water before it is used for cooking and drinking.

Infectious Diseases.

It is well known that very small living bodies known as germs can enter any of the organs and set up disease in them. Some diseases spread very quickly from one person to another, and these we speak of as infectious diseases. The most common infectious diseases in India are measles, German measles, mumps, whooping-cough, diphtheria, small-pox, and chicken-pox. It would be well for teachers to recognise these diseases in the early stages, so that the infected children may be separated from the well ones, and thus avoid the closing up of schools. For this purpose the most typical symptoms of these diseases are described below.

Measles are of two varieties. The common English type and the so-called German measles (Röthelm or Rose Rash). The former is dangerous, especially in young children, the latter is rarely ever so.

English Measles begin with a bad cold; the child has a head-ache, running from the nose and eyes, and a hard cough. The second day the patient feels better and frequently returns to school and spreads the infection, as the disease is intensely infectious in the early stage. On the third day the rash usually begins to come out on the forehead and spreads over the whole body. Spots are large, of a dark red colour,

and distinctly raised above the skin, while the face may be much swollen. The disease is often followed by a discharge from the ears, and pneumonia is the common complication. The incubation period is from 12 to 14 days.

German Measles. The rash is usually the first symptom; there are no symptoms of a cold. The rash is first seen behind the ears, the spots being as a rule smaller than English measles. It is usually preceded by a sore throat. The incubation period is from 12 to 17 days.

Mumps come on with pain near the ear and an enlargement of the parotid and submaxillary glands which cause a bulging out at the side of the neck and in front of the ear, by which means mumps can be distinguished from the enlargement of glands due to other causes. Occasionally the disease affects only one side, but usually both sides.

Whooping-cough is a disease in which the characteristic "whoop" does not appear for a week or two, but the cough appears to be due to simple bronchial catarrh: the disease is infectious during this stage, the characteristic cough is violent and repeated, and is usually followed by a sudden, noisy, crowing in-breathing known as "whoop." It usually is heard in the more advanced stage, and every teacher should be familiar with it, and send a child home who has it or who, even without it, has a cough severe enough to make him vomit.

Diphtheria. The onset of diphtheria is not sudden. The sore throat comes on rather gradually. White patches can usually be seen on the tonsils. It is not necessary that an exact diagnosis should be made, because every child suffering from sore throat should be regarded as dangerously infectious. If any of the glands of the neck below and behind the lower jaw are enlarged, the case is still more suspicious. Diphtheria may be so slight that the patient himself complains very little. Hence the importance of the rule that every sore throat should be regarded as infectious until proved not to be so. It would be well, where possible, to have a bacteriological examination of "swabs" on which a little mucus from the tonsils or other parts of the throat or nose of suspected patients has been taken. It is important to remember that the infection of diphtheria may lurk in the throat, and still more in the nose, of convalescent diphtheria patients, who may pass it on to healthy children for

some weeks after all evidence of illness has disappeared. Hence no scholar should be allowed to return to school after any form of sore throat until a medical certificate has been obtained to say he is free from infection.

Small-pox may spread in schools when this disease is prevalent in a district. In severe cases the patient does not attend school. The only possibility of school attendance is when a scholar has been imperfectly vaccinated or suffers from an attack of modified small-pox, of which the only evidence may be the occurrence of a few pimples or pustules, chiefly to be seen on the forehead. Among children imperfectly vaccinated or unvaccinated such a case may cause a serious spread of disease. Every scholar ought to be re-vaccinated at the age of 10 years ; this would render the school epidemic of small-pox a practical impossibility.

Chicken-pox. Unlike small-pox, there are usually no premonitory symptoms before the pimples appear. These rapidly become clear vesicles or minute watery blebs, which dry off or form scabs.

Early Symptoms.

The danger from the attendance at school of children suffering from an infectious disease arises at two periods :—(*a*) while suffering from the early symptoms, (*b*) when convalescent from the disease but still retaining infection in the person or apparel. To minimise the dangers under the first of these heads the teacher should be familiar with the symptoms of the onset of the chief infectious diseases as described above, as by this means he may be enabled to exclude suspicious children. The following hints may be useful to the teacher :—

1. Any scholar having a sore throat should be sent home, and regarded as infectious until the throat has been examined by the doctor. If a scholar has enlarged glands in the neck, and especially if he is very pallid, suspicion of possible diphtheria should be entertained. Many slight cases of diphtheria escape detection.

2. Any scholar suffering from a severe cold with sneezing, redness of the eyes, and running of the nose, should be sent home. It may mean influenza, cold, or beginning of measles, and all are infectious.

3. The child with a violent cough, especially if it is severe enough to cause vomiting or nose-bleeding, should be suspected of whooping-cough and sent home even if the characteristic "whoop" is not heard.

Duration of Infection.

It is important to know at what interval after the onset of an infectious disease a child may return to school, and, as it is wise in all cases to allow a margin, I have given the average duration of infection, and the interval at the end of which return to school may be allowed. It is assumed that all the wearing apparel and the room occupied by the child have been disinfected. A scholar who has been suffering from an infectious disease should never be re-admitted to school without a medical certificate of freedom from infection. In the case of *diphtheria* the patient should not return to school until *three weeks* after the medical attendant has declared him to be free from infection, and then only if there is no discharge from the ears and the nose. In the case of *measles* the patient should be excluded for *two to three weeks* or longer if the cough has not stopped. In *German measles* until the rash has gone or *five to seven days.* In *chicken-pox three weeks* or until all the scabs are off. In *mumps ten to fourteen days.* In *whooping-cough* until sickness and bad attacks of coughing have ceased. As long, however, as there are only one or two cases in a school it is best to keep all the children in the infected houses away until the maximum incubation period for that particular disease has elapsed since the onset of the last case.

The following tables for the incubation period may be observed :—

Diphtheria	.. 2— 5 days.
Small-pox	.. 9—14 days.
Chicken-pox	.. 10—18 days.
Measles	.. 7—18 days.
German measles	.. 8—20 days.
Mumps	.. 14—24 days.
Whooping-cough	.. 7—14 days.

Parasites and Skin Diseases.

Pediculi capitis. There is probably nothing that causes a teacher more trouble than dirty heads, and the appearance of the head louse and its eggs or "nits" require no description. In bad

cases of this parasite in the head the hair must be cut short, the scabs poulticed off and a mild ointment of dry boracic powder applied to the sores, but in mild cases it is sufficient to comb the hair several times a day after moistening it with turpentine and water in equal parts and wash the head every night with soft soap and water. The treatment should be continued every day for a fortnight, and all caps, hats, etc., thoroughly baked at intervals, or the children made to go bareheaded.

Scabies (*Itch*) is an eruption consisting of red raised spots, pustules, scabs, etc.: it is seen chiefly in the hands, arms and feet, but not in the face. Children with this complaint should be excluded from school until cured. Treatment consists of rubbing the whole body over with sulphur ointment every night, hot baths every morning and the beating or washing of all articles of clothing.

Ring-worm of the head. This disease is due to a fungus and spreads rapidly and is very difficult to kill. In typical cases merely bare patches are to be seen on the head. The edge of the patches is well defined and somewhat inflamed. All children suffering from ring-worm should be excluded from school.

Ring-worm of the body may attack any part of the body and takes the form of red rings which gradually increase in size while the skin in the centre heals. The trouble is easily cured by painting several times with tincture of iodine or by rubbing in mercury ointment. The patients should be excluded from school unless the affected parts are carefully covered up.

Impetigo contagiosa is common among dirty children and occurs as thick yellow scabs, chiefly about the mouth and face. The places begin as small red pimples which quickly increase in size, and blisters containing a straw-coloured fluid are formed. The blisters break and leave the scab. This disease is contagious from child to child, and spreads by means of the fingers: all those suffering from it should be kept from school until cured. The scabs should be poulticed off, and zinc, sulphur or some mercury ointment rubbed in until the scabs no longer re-form.

Eczema is a superficial inflammation of the skin attended with redness and itching. The eruption may assume many types, the two commonest being the 'wet' variety in which small vesicles or blisters are formed and continue to pour out a clean fluid for a long time when they break, and the 'dry' variety in

which the affected part is covered with small dry scales. The disease is not infectious.

The Teeth. The condition of school-children's teeth is truly lawful. They suffer much from tooth-ache and their mouths are frequently in a very unhealthy state from septic stumps, which exercise a prejudicial effect on general health. Much may be done by removal of the stumps and a systematic use of a tooth-brush at least every night.

Deafness. Deafness in children is often due to adenoids and influenza, and is generally associated with a discharge which may be very offensive. In these cases the parents should be instructed to obtain medical advice.

Inflammation of eyelids. Chronic inflammation of the eyelids is frequently associated with defective vision and the eyesight should be carefully watched in such cases. Inflammation of the eye (conjunctivitis) may be due to a variety of causes, but as the trouble may be infectious, the teacher would do well to see that medical advice is obtained if many cases occur.

Stomach-ache. *Stomach-ache.* A possibility of appendicitis must always be borne in mind as the child's life may depend on early recognition of the trouble. The diagnosis is often difficult but the symptoms commonly found are :—Constipation, pains low down on the right side of the abdomen which are increased by pressure, and an elevated temperature. In such cases the child should be sent home and the importance of obtaining medical advice, without delay, should be impressed upon the parents.

First aid. Accidents are always happening at school and the teacher must decide what is to be done.

Fits. In an epileptic fit the child is unconscious, blue in the face, froths a little at the mouth, and frequently passes water and motions. The only thing necessary is to lay him down on the floor and loosen any tight clothes, and if he bites his tongue, place a book or fold a duster between the teeth. After the fit, it is well to see whether the child injured himself when he fell.

Convulsions. In small children many acute diseases begin with convulsions but in these cases, the face is usually pale and the temperature raised.

Fainting. In ordinary fainting attacks the face is pale and the pulse feeble. Lay the patient flat down, loosen the clothes; fresh air and cold water will nearly always be found effectual.

Burns. Cover the burnt place up at once with vaseline and sweet oil. If neither can be obtained, a handkerchief rung out in boiling water and allowed to cool may be employed.

Cuts and grazes. Bathe with water to which a little boracic acid or disinfectant fluid has been added, and bandage with a piece of clean rag which has been rung out in the water. If a big vessel has been cut, apply pressure to the wound at once, and tie a piece of cord tightly round the limb above the wound.

Fracture. If the end of a bone comes through the skin, treat it like an ordinary wound. Place the injured limb as straight as you can without hurting the child much, then wrap it round with dusters and fasten any sticks, rulers, etc., to prevent the broken ends from moving. Call for medical advice.

Bad falls. If a child has fallen from a height and is evidently seriously hurt, move it as little as possible. The best thing is to cover it up warmly and let it lie where it is, until help arrives. In the case of injuries to the head, frequently caused by falls from the swing, do not give any stimulant. If the child is unconscious even for a minute, make it lie quiet for at least half an hour before sending it home.

Poisoning from berries. Give an emetic at once. A dessert spoonful of mustard in a tumbler of warm water, a teaspoonful of epecacuanha wine, or large quantities of salt and warm water.

V. K. CHATTERJEE.

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